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## ON THE RESULTS OF THE VIENNA MEETING

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79 pp 3-4

[Reprint from 22 June 1979 PRAVDA report by CPSU Central Committee Politburo, USSR Supreme Soviet Presidium and USSR Council of Ministers on the results of the meeting of General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium L. I. Brezhnev with U.S. President J. Carter]

[Text] The Politburo of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers, after examining the results of the meeting of General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium L. I. Brezhnev with U.S. President J. Carter, which took place on 15-18 June 1979 in Vienna, wholly and completely approved the actions of the Soviet delegation headed by L. I. Brezhnev and expressed profound satisfaction with the results achieved at the meeting, particularly the signing of a Soviet-U.S. treaty on the limitation of strategic offensive weapons, the protocol to this treaty and other attending documents, as well as a joint Soviet-American communique.

Agreement on these matters became possible as a result of prolonged and intense work by the Politburo of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers and the personal contribution made by L. I. Brezhnev in the preparations for the meeting, the proceedings of the actual meeting, the promotion of lasting world peace, the de-escalation of the arms race and the development of mutually beneficial cooperation between states with differing social structures.

The Vienna meeting marked an important step in the direction of healthier Soviet-American relations and a healthier international political climate in general. The complete implementation of the documents signed in Vienna will create new possibilities for the cessation of nuclear weapon stockpiling and will guarantee their effective quantitative and qualitative limitation. The attainment of this objective would signify a new stage in curbing the race for nuclear arms and would clear a path for the substantial reduction of weapons and the attainment of a higher goal: the total cessation of arms production and the liquidation of nuclear stockpiles.

The new treaty is based on the principle of equality and equivalent security and represents an equitable balance of Soviet and U.S. interests. No deviations from the treaty can be considered permissible. The Soviet Union is prepared to fully comply with all of the obligations it has assumed, and believes that the other side will approach the matter in the same manner. This will make it possible to begin the next phase of the strategic arms limitation talks within the near future.

L. I. Brezhnev and President J. Carter also engaged in a healthy exchange of views on issues that constitute the subject matter of other ongoing multi-lateral and Soviet-American negotiations in the area of arms limitation and disarmament. Compliance with the tenets of Salt II could stimulate the successful conclusion of these talks as quickly as possible.

During the course of this meeting, Soviet and U.S. positions on key aspects of the present international situation were frankly compared, including their differing positions on some issues. The exchange of views on these issues will be useful.

The fact that both sides definitely favor stronger detente has been positively assessed in the Soviet Union. It is also of great significance that both sides agree that the positive changes that have taken place on the European continent, which were reflected in the Final Act of the Conference on Security and Cooperation in Europe, require reinforcement and development with the aid of measures aimed at supplementing political detente with military detente. In this connection, the Soviet Union attaches great significance to the need for progress in the Vienna talks on the limitation of armed forces and arms in Central Europe.

The Soviet Union regards it as its duty to continue its consistent and persistent struggle against the arms race and for the reduction and cessation of the production of all types of weapons, for the further relaxation of international tension and for lasting peace throughout the world.

The Politburo of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers feel that the Vienna meeting has given rise to possibilities for the more consistent expansion of areas of Soviet-American cooperation on the principled basis of total equality, equivalent security, respect for one another's sovereignty and nonintervention in one another's internal affairs. This kind of cooperation is in the vital interests of the people in the USSR and the United States and will make international peace stronger.

The Vienna meeting of L. I. Brezhnev and U.S. President J. Carter and its results aroused widespread positive reactions throughout the world. This reaffirmed the fact that Soviet-American agreements which aid in limiting the arms race, consolidating international detente and strengthening peace are in the interests of all countries and all mankind. The results of the meeting have been approved by the broad popular masses and realistic-minded statesmen.

The Soviet people, who unanimously support the policy of peace conducted by our party and the Soviet Government, have positively assessed the results of the Vienna meeting. The successes of this policy are giving the Soviet people new strength and energy to carry out the great tasks of communist construction.

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CSO: 1803

## IMPERATIVE OF DETENTE

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79 pp 5-7

[Text] Worldwide attention continues to be focused on the meeting in Vienna between L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium, and U.S. President J. Carter, and their signing of the USSR-U.S. strategic offensive arms limitation treaty (SALT-II) as well as other Soviet-American documents.

The Vienna meeting, says the CPSU Central Committee Politburo, USSR Supreme Soviet Presidium and USSR Council of Ministers document "On the Results of the Meeting Between L. I. Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium, and U.S. President J. Carter," marks an important step toward normalizing Soviet-American relations and the entire international political climate.

As L. I. Brezhnev stressed, the SALT II treaty is realistic and concrete. It is built on the principle of equality and identical security. Its essence is the quantitative limitation of arms and the restraining of their qualitative improvement.

As is clear from Article 1 of the treaty, the sides have also pledged to display restraint in creating new types of strategic offensive arms. L. I. Brezhnev expressed the Soviet Union's readiness at any time to begin practical talks on such an important question as the conclusion of an all-embracing agreement banning the development of any new types and systems of mass-destruction weapons.

When the treaty comes into force each side undertakes to limit landbased ICBM launching installations, launching installations for SLBM's, heavy bombers and also air-to-surface ballistic missiles, to a total of not more than 2,400. This provision of the SALT II treaty enshrines the Vladivostok agreement reached in 1974. The next provision develops this agreement: Each of the sides undertakes from 1 January 1981 to limit the aforementioned strategic offensive arms to a total of not more than 2,250 units, and to begin reducing those arms which would exceed that total on that date.

During the Vienna meeting L. I. Brezhnev and J. Carter had a useful exchange of opinions on a whole series of fundamental questions of Soviet-American bilateral relations, going beyond the bounds of the discussion of the SALT II treaty, and also on important international problems, and set out frankly the positions of the USSR and the United States of key questions, including problems where these positions diverge.

As was reported at a press conference, L. I. Brezhnev, addressing J. Carter, said that the USSR and the United States will not push each other off the face of the earth and will not change each other. So, the only reasonable course of action is to advance further along the path of peaceful coexistence, detente and businesslike cooperation in the interests of both countries and the consolidation of peace throughout the world.

Touching on the concrete Soviet ideas now being examined in the course of bilateral and multilateral talks, L. I. Brezhnev singled out the proposal to end the production of nuclear weapons and gradually reduce stockpiles up until their complete elimination.

President J. Carter also came out in favor of more radical arms limitation, right up to the complete elimination of nuclear weapons.

In the course of the meeting special attention was devoted to the question of preventing the "spread" of nuclear weapons over our planet--a question of tremendous significance for averting nuclear war. The Soviet side called on the United States to continue to act jointly and in parallel to involve as many countries as possible in the Treaty on the Nonproliferation of Nuclear Weapons and to impose even stricter control on deliveries of nuclear materials, equipment and technology which could be used to create nuclear weapons.

During the exchange of opinions the two sides stated that the USSR and the United States can make a positive contribution to modern international development and to strengthening detente and can help to resolve pressing international problems.

In general the businesslike, constructive atmosphere of the latest Soviet-American summit and the documents signed in Vienna have undoubtedly made a substantial contribution to strengthening and developing everything positive that has been accumulated by joint efforts in Soviet-American relations since the early 1970's. The achievements of important new agreements and accords is a factor promoting the consolidation and deepening of detente throughout the world. This factor must also give a boost to detente in the military sphere. The SALT II treaty not only opens up the path for continuing bilateral Soviet-American talks on further strategic arms limitation, it is also a stimulus for more rapid progress at other bilateral and multilateral arms limitation talks. In this connection special significance is attached to breaking the deadlock at the Vienna talks on the mutual reduction of arms and armed forces in central Europe.



The Soviet Union attaches great significance to cooperation with the United States in international affairs. The two countries' might and influence place a special responsibility on them. Back in the first half of the 1970's the USSR and the United States agreed to work together to prevent the outbreak of nuclear war and undertook to develop relations on the basis of peaceful coexistence and respect for the principles of sovereignty, equality and non-interference in each other's internal affairs. Each of our states has its own social system, its own ideology, its own logic of development, its own particular features. But in the face of the threat of nuclear war there is only one reasonable course--the course of peacefully resolving problems, of talks and of peaceful coexistence.

As is known, the history of USSR-U.S. relations has known different times--bad and good. This applies not only to the relatively distant past, when from the allied relations of the World War II period Soviet-American relations were plunged into the cold war, into the protracted period--fraught with the threat of direct military conflict--of implacable hostility imposed by the initiators of "nuclear diplomacy" and the "rolling back communism" policy.

Soviet-American relations have developed by no means evenly--and again not through the Soviet Union's fault--even after such a fruitful period as the first half of the 1970's, marked by the shift away from cold war to detente, the period when the treaty base was laid for the all-round development of cooperation and mutual understanding, when economic, trade, scientific, technical and cultural ties began to expand actively.

The intrigues of the opponents of detente seriously delayed progress in many directions, including the sphere of arms limitation. Under pressure from the "hawks" the American side virtually formed the intention of foisting on its partner in the talks conditions which amounted to the desire to insure American military-strategic superiority, and therefore to violate the parity which had become established and recognized by both sides, thereby setting in motion a new spiral in the arms race. That is why, after the agreement in principle in Vladivostok in November 1974, the SALT II talks lasted another 4.5 years and the new treaty was only signed 2 years after the expiry of SALT I--the first Soviet-American strategic arms limitation agreement.

The firm, and at the same time calm position of the Soviet Union, which observed the SALT I agreement strictly and adhered consistently to the Vladivostok agreement, and the sober approach displayed by influential U.S. circles made it possible to bring the talks onto the sole realistic path: toward the quest for mutually acceptable solutions on the basis of the principle of equality and identical security. The outcome of this course and of the readiness displayed by the sides to make reasonable compromises was the SALT II treaty.

Although the opponents of detente and arms limitation did not succeed in wrecking the signing of the SALT II treaty, they have not renounced their



attempts to render null and void the accord which has been reached. Judging by reports from Washington, such attempts could take various forms, including that of introducing unilateral "amendments" into the treaty, so as to wreck its ratification by the Senate.

The SALT II treaty, L. I. Brezhnev stressed in Vienna, is the result of many years of efforts and represents a fair balance of interests. Any attempts to shake this complex edifice built with such labor, to replace any details in it or to make it more one-sided are pointless. The entire structure would collapse--with serious and even dangerous consequences for relations between the USSR and the United States and for the situation in the world as a whole.

The complete implementation of the documents signed in Vienna, as the CPSU Central Committee Politburo, USSR Supreme Soviet Presidium and USSR Council of Ministers document on the results of the Vienna meeting indicates, opens up new opportunities to halt the buildup of nuclear missile arsenals and insure their effective quantitative and qualitative limitation. The resolution of this task would be a new stage in restraining the nuclear arms race and would open up the path to a substantial arms reduction and the realization of the supreme goal: to cease the production and eliminate stockpiles of nuclear weapons.

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## AMERICAN CONCEPT OF INTERDEPENDENCE

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79 pp 8-19

[Article by A. V. Nikiforov]

[Text] One of the main "reservoirs" of ideas for the adaptation of U.S. policy to new conditions in the world is the theory of "interdependence." It has had a noticeable effect on Washington's foreign policy rhetoric, as well as on the development of the current administration's approach to relations with the developing and socialist countries and to global issues.

The rhetoric about "interdependence" became particularly loud and persistent in the United States in the middle of the decade as one of the signs of Washington's reaction to the struggle being waged by the developing countries for the adoption and implementation of the principles of a new international economic order (NIEO).

When President G. Ford addressed the UN General Assembly in September 1974, he said: "Developing and developed countries, countries with a market and non-market economy--all of us are part of one interdependent economic system. It should be...clear that by facing consumers (of raw materials--A. N.) with the possibility of production cuts, artificial pricing and the prospect of eventual bankruptcy, producers will ultimately become the victims of their own actions."<sup>1</sup> The same idea was repeated a year later at the Seventh Special Session of the General Assembly in September 1975 by then Secretary of State H. Kissinger: "The fact is that the world economy is a single global system of trade and currency relations, on which the development of all our economies depends. We are deeply convinced that neither the poor nor the rich nations can attain their goals in isolation. They cannot engage in extortion either--least of all the developing countries, since they would have to pay a high price for a division of the planet which would cut them off from the sources of capital and the markets necessary for their own progress."<sup>2</sup>

Along with the official rhetoric, which essentially consisted in the issuance of orders by Washington to other countries in regard to their behavior in the "age of interdependence," many works by experts on international affairs, attempting to reply to the question of what particular policy line the United States should conduct in the international arena under these conditions, were published in the United States in the 1970's.

Such prominent American experts on international affairs as F. Bergsten, L. Krause, L. Bloomfield, D. Baldwin, L. Brown, S. Brown, J. Nye, R. Keohane, R. Cooper and R. Tucker made an important contribution in the elaboration of this concept on the theoretical level. The "interdependence" of the United States and the developing countries was the subject of works by Overseas Development Council personnel J. Sewell, R. Hansen, J. Howe and R. Gardner. Works were written about "interdependence" with the socialist countries by Z. Brzezinski and H. Sonnenfeldt. "Interdependence" has always been the conceptual basis of the research projects of the "Trilateral Commission," of which, as we know, J. Carter and Z. Brzezinski were once members. Now many of its members, just as several of the experts listed above (Bergsten, R. Cooper, J. Nye and R. Gardner), hold important positions in the Democratic Administration.

These experts believe that "international interdependence" is engendered by two basic processes: the "growing physical interdependence" of states and the "erosion of the world order" that took shape in the postwar period.

They feel that one of the deep-seated causes of "growing physical interdependence" is technological progress, the effects of which take two principal forms. Firstly, it stimulates the development of productive forces, thereby promoting more intensive international division of labor and the expansion of economic and other ties between states and nongovernmental organizations. Secondly, it gives man (or the monopolies or states) means of influencing the environment, and the consequences of this transcend the boundaries of individual states. "An increasingly interdependent world is being engendered by ...technology," R. Tucker writes, "which no longer admits the possibility of a 'separate' state; it is being engendered by transnational economic and social subjects which largely function independently of the state, and by the process of industrial growth, which is giving rise to problems that cannot be solved by states in isolation."<sup>3</sup>

Another American expert, L. Brown, distinguishes between economic, ecological, resource, technological and social "interdependence."

In his definition, the first of these signifies the development of international economic integration, leading to the creation of a "network of international economic institutes," superimposed on the "organization of the world by national states with precisely delineated geographic boundaries." "The appearance of literally hundreds of multinational corporations," he adds, "has caused the idea of the national state as an independent organism to change imperceptibly in a manner that is still not fully understood."<sup>4</sup>

Ecological "interdependence" comes into being, according to L. Brown, as a result of environmental pollution, shortages of fresh water and ocean fish, the reduction of the earth's forests and other results of man's production activity, which, although they take place within the boundaries of individual states and arise from the activity of national organizations, have global consequences due to the unity of the biosphere.

When L. Brown speaks of resource "interdependence," he is referring to the growing raw material dependence of the Western countries on the developing states, as a result of which "the relations between rich and poor countries, which were once distinguished by the dependence of the latter on the former for capital and technology, are becoming more truly interdependent relations."

Technological "interdependence" is the result, L. Brown writes, of more intensive international specialization in research and engineering, which has led to a situation in which "the flow of technology over national boundaries is growing at the rate of 14 percent a year."<sup>5</sup>

The author presents two examples to illustrate social "interdependence": drug addiction in the developed Western countries and unemployment in the developing states. It would be impossible to combat drug addiction without the cooperation of the developing countries--the main producers of narcotics--and other states through which the international smuggling of narcotics is accomplished. The rising rate of unemployment in the liberated states is leading to political instability "with its various potential international consequences,"<sup>6</sup> but the Western countries could do much to reduce unemployment, particularly by changing their customs policies in such a way as to stimulate labor-intensive production in the developing countries.

These areas of the "interdependence" of states, in combination with many global problems which will be discussed in greater detail below, essentially constitute the "physical interdependence" written about by American experts. But this is not the central issue of these studies, and it is not the problem the authors are trying to solve. After all, it was precisely the United States that did everything within its power to encourage increased economic and social integration by the developed Western states and the penetration of the developing countries by its own monopolies. "Physical interdependence" has become a political problem for the United States now that its world positions are growing weaker and its possibility of influencing developments in its own interest has diminished.

This process is based on the general change in the balance of power in the world, and even within the capitalist system--and not in the United States' favor. The reinforcement of the economic positions of the Western European countries and Japan has led to dramatically more intensive "trade wars" between them and the United States ever since the late 1960's, and has resulted in a crisis in the currency and financial system based on the dominant position of the dollar. In the 1970's, the new balance of power in the world and the dramatic reduction of the Western countries' opportunities to use military strength to guarantee their economic interests made it possible for the developing countries to make effective use of the economic dependence of the West in a much more intense struggle for the reorganization of the entire complex of economic relations between the two groups of states in the capitalist world. Because the United States was no longer capable of overtly imposing on other countries its preferred forms and methods of interaction in economic and other areas, it was forced to adapt to the growing

strength of its competitors and find new ways of protecting its own foreign policy interests and new means of exerting political and economic influence.

It is precisely at the search for solutions to these problems and at the elaboration of an international policy line under the conditions of the new balance of power in the world that the American theory of "interdependence" is aimed. Its authors have listed the following basic features of international relations in the "age of interdependence": the diminishing impact of the use of military force for the attainment of political goals; the politicization of international economic relations; the eradication of boundaries between foreign and domestic policy; the appearance of global problems; the increase in universal awareness and the influence of public opinion and, consequently, the attachment of greater significance to the moral factor; the increased number of factors contributing to foreign policy strength--from military, financial and technological factors to economic potential in the broadest sense of the term (natural resources, territory and so forth); the broader spectrum of factors regarded as a threat to the national security of the United States, including threats from the developing countries, in the areas of economics and ecology; the increased importance of the role of multilateral diplomacy and international organizations.

When they define "international interdependence," the authors of this theory do not distinguish between the factors of physical and political "interdependence," interpret the latter as the "increased political sensitivity" of all states and exaggerate the importance of the psychological interpretation of objective facts by political figures. No mention is made of the fact that the essence of "political interdependence" for the United States is the growth of restrictions on uncompromising adherence to its foreign policy line, although the recommendations of these authors are aimed precisely at adaptation to these restrictions and ways of getting around them.

F. Bergsten, R. Keohane and J. Nye describe "interdependence" as "the mutual sensitivity and vulnerability of societies and their politics."<sup>7</sup> D. Baldwin feels that the "global tendency toward increased interdependence" between countries consists in a process in which the majority are "encountering an increasing number of problem areas, in which their ability to attain their political goals largely depends on events in other countries and their policies."<sup>8</sup> Another prominent expert, L. Bloomfield, wrote the following in a work he co-authored: "Paradoxically enough, interdependence presupposes dependence. Actually, it is precisely dependence that is the real problem in the relations of interdependent nations." Pointing out the fact that "interdependence" exists in areas other than economic relations--political, strategic, military, environmental and cultural relations--he states: "Interdependence is much broader than simple reasonable estimates, broader than any direct calculation of quantitative expenditures and advantages. A man is dependent if he thinks so or if he feels dependent. Just as strategic intimidation, this game is played on the basis of substantiated assumptions regarding the way in which others will perceive the reality one sees."<sup>9</sup>



One important premise of the "interdependence" theory is the thesis concerning the existence of not one, but numerous asymmetrical "interdependences" between states, the strength of which will depend on their collective positions in numerous international coalitions or "balances of power" in different fields.<sup>10</sup> "Reciprocal influence...is rarely equal on both sides, and the degree of dependence is almost never equal," J. Nye writes. "This kind of unequal dependence can be a source of strength."<sup>11</sup>

Clarifying this statement, another American researcher, R. Hansen, notes: "The interdependence between the developed and developing countries is asymmetrical in favor of the former," and the potential strength stemming from this "could be put into play to determine the degree of 'order' that will be characteristic of the international system."<sup>12</sup>

One of the logical results of this approach is the deduction of the theory's authors that, in itself, "interdependence" is equally likely to be a source of cooperation as of conflicts--in contrast to the rhetoric which interprets it, in J. Nye's words, as "a good thing, or a force inexorably leading to cooperation."<sup>13</sup> Moreover, R. Tucker believes, "even in the new order of interdependence, it seems only proper to assume that conflicts of interest will arise and, as the oil crisis demonstrated, this growing interdependence will itself be the reason for many serious conflicts of interest."<sup>14</sup> Proceeding from this premise, the authors of the theory have stated that the United States must "learn to live with interdependence and use it for leadership."<sup>15</sup>

The theory of "interdependence" came into being at the end of the 1960's as a reaction by the U.S. ruling class to the changing balance of world power and was first used in relations with the Western European countries and Japan. It served as the basis for the U.S. theses set forth in regard to "partnership" and "trilateralism," which have been adequately discussed in Soviet literature.<sup>16</sup>

One of the distinctive features of the elaboration of the concept of "interdependence" in the 1970's was the attempt by American authors to extend it to U.S. relations with the developing and socialist countries and to give it global significance. The main purpose of the concept of global interdependence was unequivocally asserted by S. Brown. It is necessary "to contribute," he wrote, "to the creation of the multitude of intermingled webs of interdependence between the countries of rival ideological blocs and between nations which have traditionally been enemies. The goal should be the creation in the world arena of a dense interrelationship and interwebbing of communities, which would prevent extreme polarization and civil wars within the more stable countries."<sup>17</sup>

Taking the peculiarities of American scholarly terminology into account, we can assume that this refers to the elimination of class struggle, both within the states making up the capitalist system and between the two social systems, on the basis of their "common interest" in economic development, stability and the resolution of global problems.

The recommendations of the theory's authors, therefore, essentially say that the United States should stimulate the development of world integration, involve the developing countries more actively in the Western economic system and attempt to attach the socialist states to this system on its own terms. In this process, the United States itself should only strive for deeper "interdependence" in convenient areas, and limit or even reduce its own independence as much as possible in those spheres in which it does not occupy positions of superiority (imports of oil and raw materials).

Most of the authors of this theory realize that viable integration is possible only between equals. For this reason, they advocate alleviation of the economic and political conflict with the developing states through compromises on the part of the West, but they do not agree on the nature and degree of the compromises or on the areas in which they should be made.

Some authors who are most closely connected with actual policy-making (F. Bergsten and R. Cooper) propose nothing more than bringing the international capitalist system of division of labor into accord with the changing balance of power between the two groups of countries making up this system. The focal point of the new system is supposed to be a complex of mutual obligations: The developing countries will guarantee American and other Western monopolies access to sources of energy and raw materials, uninterrupted shipments of them, and access to the economic resources of these countries in general; the developed Western countries will make their markets, capital, technology and commodities accessible to the developing states. For the West, this would mean, according to F. Bergsten, the lowering of customs and non-customs barriers to imports of finished items and semimanufactured goods from the developing countries, the encouragement of their economic integration, the strengthening of the least developed of these countries, the augmentation of their role in international organizations and so forth. In exchange, the developing countries are to renounce the NIEO principles that are least acceptable to the West--sovereignty over the property of foreign countries on their territory, and the raw materials integration program with its "common fund," including "indexation."<sup>18</sup> A quite similar, but tougher, course is proposed by R. Cooper. He objects to the transfer of material resources to the developing countries in the form of aid and the "overpricing" of raw materials and advocates strictly "equivalent" cooperation: the expansion of trade by means of the mutual lowering of customs barriers, the conclusion of stabilizing trade agreements and the joint development of the resources of the world ocean and sea bed.<sup>19</sup>

Therefore, the recommendations of this group essentially boil down to a partial reorganization of the system of international capitalist division of labor, which, in itself, will supposedly provide opportunities for the accelerated development of the developing countries and the alleviation of economic inequality.

Another group proposes the immediate mass-scale transfer of material resources to the developing countries, mainly through international organizations and "automatic" channels (for example, the taxation of the international trade

in raw materials). Scholars searching for solutions to environmental problems have a great deal of influence in this group. Prominent expert in this field L. Brown writes: "Global cooperation on the scales necessary for the protection of the ecosystem, which affects the quality of life in the rich countries, will largely depend on much more serious attempts by the rich to reduce the growing economic gap between the poor and the rich."<sup>20</sup>

On the whole, however, this line of thinking takes its ideas from the principles of bourgeois egalitarianism and advocates the guarantee of "equal opportunities" for all "citizens of the planet" in combination with an abrupt leap toward the creation of a "world government." When J. Lewis argues in favor of the "prolonged transnational redistribution of income," for example, he proposes, in addition to aid, the cancellation of debts and the taxation of the world trade in non-regenerated resources by means of a world income tax. Its collection and distribution, just as the overseeing of other channels of income redistribution, should be the responsibility of a "competent, enlightened, democratically responsible, transnational political body."<sup>21</sup>

These two approaches could be called the minimum and maximum programs for the creation, within the framework of the non-socialist world, of a single economic organism based on the unrestricted functioning of the laws of capitalism, and with the appropriate political superstructure. The prime mover in this process should consist in the intensification and development of economic interdependence or integration between the developed capitalist and developing countries to a level excluding the possibility that political disagreements will influence the structure and patterns of economic ties within the capitalist system.

The following basic features are characteristic of the views of American specialists on U.S. "interdependence" with the socialist countries, particularly the USSR. In the first place, they feel that economic interdependence between these countries does not exist at present. This conclusion is based on the relatively negligible volume of economic, scientific, technical and other contacts between the two systems, as well as the fundamental premise that these contacts are allegedly convenient only for the socialist countries and, consequently, it would be absurd to say that the United States is in any way dependent. In the second place, the process by which political "interdependence" comes into being and gains strength--that is, the growth of restrictions on the United States' uncompromising adherence to its class foreign policy--is either seen as the result of its nuclear potential with its tremendous destructive power, or ignored. This is understandable, since any discussion of this would be tantamount to an admission that the balance of power in the world is constantly changing in favor of socialism. Naturally, this kind of "interdependence" is considered to be negative by American specialists. For this reason, their recommendations mainly consist in "drawing" the USSR into "international economic interdependence," or into the "global community."

The terminological peculiarity here is the fact that the words "global," "world" and "international" apply to the capitalist system. The involvement of the USSR and the other socialist countries in this kind of "international



interdependence" should be accompanied, according to this theory, by their renunciation of their class foreign policy and the gradual transformation of their social order. "We have entered an era," H. Sonnenfeldt recently wrote, "in which the United States and the external world as a whole can try, with increasing persistence, to draw the Soviet Union into the regulations and restrictions, but also the benefits, of the international system."<sup>22</sup> This is supposed to be achieved by means of traditional levers--trade and economic contacts--and by means of a "new interdependence"--in connection with global problems.

American experts believe that the most serious of these problems are nuclear nonproliferation; raw material, energy, currency and food problems; the regulation of world population growth; the development of the Asian, African and Latin American countries; the use of resources of the world ocean, sea bed and outerspace; environmental protection; control over the production and sale of narcotics, and some others.

For American scholars, just as, incidentally, for other bourgeois scholars, the basic conceptual premise for the analysis of these problems and the search for their solution has become the thesis, which is either implied or quite openly stated, that the principal and irrevocable course of human development is supposedly personified in the capitalist system, the values of which will allegedly sooner or later be recognized by all mankind. This premise causes them to ignore the different forms taken on by many global problems (the energy and food shortages, demographic problems, problems of development in general, etc.) in countries belonging to different socio-economic systems, as well as the abundant experience accumulated by the socialist countries in their resolution. This supposedly extra-class, extra-social approach is diverting bourgeois researchers away from the search for realistic forms of interaction by the two social systems for the resolution of these problems. The logical result of this is the identification of the structural crises of capitalism with global problems (for example, the association of the capitalist energy crisis with the need to find energy supplies for the development of all mankind), the absolutization of private monopolistic forms of technical problem-solving and the attempt to use international cooperation on these problems to overcome class struggle in the world arena.

The American specialists' approach to global problems is based on the powerful scientific, technical and financial potential of the American monopolies, the United States' leading position in world food and technology exports and the dependence of many countries on American satellite communications systems, natural resource research projects and so forth.

"As the leading world center of technological innovation, the United States could encourage others to take part in the use of new opportunities for the development of a global system for the exploitation of the earth's riches," S. Brown writes. The purpose of this kind of cooperation should be, in his opinion, guaranteed "access for American scientists and technologists to coastal regions and the sea bed, which contain deposits of new mineral resources," the "granting of priority frequencies and orbital paths to the

United States for its satellite systems" and the encouragement of other states to set up, in conjunction with the United States and the Western countries, "a global system to oversee and regulate the use of air, water and land resources to prevent the dangerous misuse of the basic ecosystems."<sup>23</sup>

The principal organizational way of solving global problems is thought to consist in the establishment of international organizations for the regulation of the world deposits, production and distribution of specific resources (for example, food and raw materials). As an essential condition for this, it has been proposed that states transfer all or part of their national sovereignty to these organizations in the appropriate areas.

For example, in the area of foodstuffs, according to L. Brown, the United States should take charge of all efforts to create a system of world reserves, exchange information, forecast demand and work out principles defining the international obligations of exporters to guarantee food shipments in critical situations. The elaboration of such principles in an area dominated by the United States "would set an important precedent of great potential significance in the search for solutions to the problem of access to non-food resources"<sup>24</sup>--that is, in exchange for this, other countries could be requested to take on similar obligations to make sources of raw materials and energy accessible.

This guaranteed accessibility has been called the major means of solving raw material and energy problems. The goal here is to supply "all nations" with enough raw materials and energy at "reasonable prices," and this calls for the guarantee of their efficient, from the "global" standpoint, production. In view of the fact, the authors of this theory go on to say, that the capital, technology and equipment needed for this purpose are owned by the Western monopolies, especially the American ones, they should be granted unimpeded access to mineral deposits throughout the world and provided with safeguards against nationalization. In this case, according to the American specialists, the market mechanism, relieved of extra-economic limitations, will accomplish the satisfaction of world demand for raw materials and energy at optimal prices.

"Considering the potential importance of American technology in the resolution of the world energy problem," J. Howe, for example, writes, "it is an absolute pity that American and global interests are frequently not considered to be ultimately identical. The existing mixture of global ineffective energy policies is part of the price the world is paying for the oil cartel (this refers to OPEC--A. N.)--a price which must be compared with the value of the cartel as a means of compensation--although quite unequal--for past inequities in the distribution of global income."<sup>25</sup>

Therefore, although it does not occupy a definitely superior position in the areas of mineral and energy resources, the United States is asserting that U.S. and global interests are identical. If this is the case, then the development countries themselves should be interested in guaranteeing freedom of action to American and other transnational monopolies on their territory.

The main aspect of the process of increasing "interdependence," according to the calculations of American specialists, will be the limitation of the national sovereignty of states. "The transformation produced by growing interdependence," R. Tucker believes, "will lead to the creation of a, so to speak, 'abbreviated' state--that is, a state which will ultimately lose its fangs of sovereignty and in which the narrow interests of the past will be replaced by planetary interests."<sup>26</sup>

It is not difficult to see that the theory of "interdependence" synthesizes and modernizes elements of many notorious theories set forth by American and other bourgeois political scientists (the theories of "world government," "partnership," "convergence" and others). Echoes of these theories can also be found in the essential content of the recommendations made by its authors--a guaranteed leading role in the capitalist system for the United States, and the consolidation and rejuvenation of this system through the more intensive involvement of the developing countries. The slogan of "struggle against communism," which was previously used to camouflage these aspirations, is to be replaced by a positive appeal for cooperation in the "management of interdependence," which, what is more, might even be extended to the socialist countries. Besides this, in the opinion of American theoreticians, this kind of cooperation in the interests of capitalism, which supposedly represents the acme of mankind's social development, will correct the "historical aberration," namely socialism.

In this abundant harvest of theoretical construction by American authors of the concept of "interdependence," the wheat must first be separated from the chaff. This is particularly important since we are dealing with the traditional--supposedly extra-class, but actually thoroughly bourgeois--approach to foreign policy, and often just a simple disregard for unpleasant facts by the West. In particular, this theory ignores the class contradictions between the foreign policies of the socialist and capitalist states and attempts to separate the former from the "international community."

It is obvious that the Soviet Union does not need to be "drawn" into the international community. It has not only been a member of this community--and will continue to be one, in spite of the United States' desires--but its foreign policy has been the main factor in the growing democratization of international relations and the strengthening of political interdependence for the United States. Moreover, the constructive peaceful activity of the USSR and the entire socialist community in the international arena has given rise to the possibility of egalitarian cooperation by states in the resolution of such global problems closely connected with questions of war and peace and the preservation of civilization and the cessation of the arms race, the nonproliferation of nuclear weapons, the limitation and prohibition of nuclear tests and the institution of other measures to strengthen security and peace.

Did political interdependence--that is, the need for each state to consider the interests and policies of other states in the international arena--only come into being in the 1970's? Of course not. It is quite another matter

that new factors, which are restricting and impeding the imperialist policy of the United States, have come into being and are gaining strength, and what is quite important is that U.S. politicians are beginning to realize this.

The situation is exactly the same in regard to the supposedly sudden interdependence of domestic and foreign policy. This interconnection, which was revealed by the founders of Marxism-Leninism, is objectively inherent in any state. It is quite another matter that the crisis of Washington's interventionist foreign policy and, in particular, its aggression in Vietnam resulted in the dramatic growth of domestic opposition to this policy line. Besides this, the lack of correspondence between the economic and political interests of groups of international monopolies and the interests of the majority of nations is increasing and becoming more and more apparent; this was particularly forcefully demonstrated by the "oil crisis." In connection with this, American ruling circles are encountering growing domestic political difficulties when they make decisions aimed at stronger capitalist economic integration.

It should be stressed that the state of interdependence in U.S. relations with the capitalist countries was engendered by intensive economic integration in combination with the decline in U.S. influence. As soon as the United States' partner-rivals had an opportunity to exert economic pressure on Washington, its trade and financial ties with them began to be regarded as economic interdependence, with the painful recognition of U.S. dependence as one of its integral elements. Transcending the limited capabilities of the "free market," the regulation of economic conflicts called for government decisions and acquired the features of political interdependence.

The United States' relations with the socialist countries are of a different type. After taking on the role of guarantor of the capitalist system, the United States objectively entered the state of political interaction with other countries in the postwar period. The growth of the socialist community's economic and defense potential was accompanied by the increasing objective recognition of this state by American theoreticians. It is indicative, however, that the recognition of this fact was accompanied by persistent U.S. attempts to gain onesided benefits and advantages. As for economic "interdependence," it is clear that it does not and cannot exist in the relations between the socialist and capitalist countries in the form in which it exists within the capitalist system, namely in the form of the unrestricted development of private capitalist integration, which will ultimately result in political conflicts. The foreign economic ties of the socialist states represent an extension of their well-planned domestic economic activity. It is distinguished by constant political control over these ties, their utilization in the interests of socialist construction and the discouragement of all attempts to use them to the detriment of the social order.

The tendency of the authors of this theory to consciously or unconsciously ignore the deep-seated social factors which have caused international relations to evolve to their present state, and the growing influence of socialism



on the character and structure of these relations is keeping them from accurately estimating the patterns of their future development and making viable long-range recommendations pertaining to U.S. foreign policy, not only policy toward the socialist states, but also toward the developing countries.

There is a profound contradiction between these authors' recommendations concerning the accelerated development of the latter countries and the alleviation of economic disparities within the capitalist system and the actual policy of the United States. The implementation of these recommendations, for example, should result in the refusal to support reactionary, monarchic and feudal regimes and in the use of U.S. influence to stimulate economic and social reforms in the developing countries--that is, in the attainment of some of the objectives of national liberation revolutions. Under present conditions, however, now that the evolution of international relations and the foreign policies of the absolute majority of states are determined by the struggle between the two social systems, the national liberation movement is becoming part of the worldwide transition from capitalism to socialism.

Since it is aimed at the prevention of this transition, U.S. foreign policy unavoidably becomes reactionary. The interests of socioeconomic development in the liberated countries, even within bourgeois democratic limits, are sacrificed to the interests of the traditional global fight against socialism. One of the inherent characteristics of U.S. foreign policy is its tendency to suppress democratic movements and support reactionary regimes--the shah in Iran, Somoza in Nicaragua, the dictators of South Korea and Haiti, the racist regimes in Pretoria and Salisbury, etc. It is precisely for this reason, as L. I. Brezhnev pointed out, that the "further development of the liberated countries along the path of national independence will inevitably bring them into conflict with the policy of imperialism and can only be accomplished in struggle against imperialist policy."<sup>27</sup>

This historical natural tendency makes the socialist countries the natural ally of the national liberation movements in the struggle against imperialism and the struggle for a new international economic order. "The Soviet Union sympathizes with this broad program of measures reflecting the immediate and long-range interests of the developing countries and supports its principled aims,"<sup>28</sup> the Soviet Government's declaration "On the Reorganization of International Economic Relations" states.

As for truly global economic and other problems, the CPSU, the Soviet State and Soviet science have been conducting a productive search for their solutions for a long time now, and have expressed their willingness to cooperate with the nations of the world community in this search. At the 25th CPSU Congress, L. I. Brezhnev pointed out the fact that global problems "will have an increasingly noticeable effect on the life of each nation and on the entire system of international relations" and said that "our nation, just as the other socialist countries, cannot remain uninvolved in the resolution of these problems which concern the interests of all mankind."<sup>29</sup>

The Soviet Union and the other socialist countries are also encountering such developmental problems as the problem of energy and food supplies and so forth, but they are solving them, including resolution on the international level, from a fundamentally new standpoint--on the basis of equality, nonintervention and respect for sovereignty, or on the basis of the laws governing their own socioeconomic system. In his speech at a festive meeting commemorating the 60th anniversary of October, L. I. Brezhnev discussed these problems and made the following statement: "With its internal development and its approach to international relations, the socialist part of the world is providing a good example of the best way of solving the massive problems facing mankind."<sup>30</sup> The facts of the USSR's unprecedented experience in the development of Central Asia and the Transcaucasus and its assistance of the socialist countries of Mongolia, Cuba and Vietnam are widely known. The socialist countries have accumulated and are utilizing abundant experience in the development of economic relations, devoid of any traces of neocolonial exploitation, with the developing countries and are now making a mass-scale transition to multilateral developmental aid through CEMA--for example, aid to Ethiopia and Angola.

In their approach to global problems, the CPSU and the Soviet State, adhering to the Leninist principle, are concentrating on the most important of these problems--the prevention of a new world war and the limitation and reduction of weapons. The resolution of this problem will not only create much greater material potential for the resolution of other global problems, but will also improve the international climate and promote the further establishment and spread of the principles of peaceful coexistence by states with differing social structures, so that their expanded cooperation will be based on the clearly recognized interest of all countries in the progress of all mankind.

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## AMERICAN PUBLIC OPINION AND CHINA

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pp 20-30

[Article by A. A. Nagornyy and R. Yu. Volkova]

[Text] The considerable changes in American-Chinese relations at the end of 1978 and the beginning of 1979 were accompanied in the United States by a broad-scale propaganda campaign in favor of further convergence with Beijing. This campaign became particularly intense in January-February 1979 in connection with the U.S. visit of Vice Premier Deng Xiaoping of the PRC State Council. The "benefits" and "advantages" of convergence with China were repeatedly asserted in the press and through various mass media channels by representatives of the administration and many politicians. At this time, dozens of newspaper and magazine articles appeared, containing analyses of the "prospects for cooperation" with the PRC. This political propaganda campaign was intended to ensure domestic political support as quickly as possible for measures aimed at convergence with Beijing, in connection with which politicians and ideologists of the U.S. ruling class began to pay more attention to national public opinion in regard to the government's policy toward China.

This concern with public opinion has been necessitated by the fact that the role of the broad masses in political life is growing more important even under the conditions of the capitalist society. To a certain degree, the study of public opinion is based on the widely used sociological surveys which are supposed to study the mood of the masses--that is, to perform a kind of political surveillance function. Before the desired direction of change in public judgments can be determined and public opinion conforming to the interests of ruling circles can be created, it is necessary to "sound out" this opinion. At the same time, the study of the mood of the general public is important for professional politicians from the purely pragmatic standpoint as well: They must learn whether a particular political action on their part will be approved in the future by the voters and determine the chances of its support in the next election.<sup>1</sup>

In spite of the strong stimuli emanating in January and February 1979 from official circles and the mass media, the American public did not have a unanimous reaction to political events connected with U.S.-China relations.

To a considerable degree, this reaction was preordained by the complex of traditional beliefs about China which took shape prior to Washington's "new approach" to Beijing. It would be difficult to understand current trends in American public opinion in regard to China without taking the complex and contradictory context of the history of American-Chinese relations into account.

The attempts to find the most all-encompassing "common denominator" in the mass American public mind in regard to China suggests that all of the contemporary American ideas about this country date back to the concepts and ideas that originated mainly around the time of the end of World War II, and it was precisely during the postwar period that American public opinion in regard to China was subjected to radical politicization and ideologization. This was a completely natural process as it reflected the radical changes taking place in China and--in general--in international relations.

The events in China were interpreted by the official propaganda machine primarily in the context of confrontation between two opposing social systems, in the spirit of anticommunism and hostility toward the socialist world.

As a result of this, U.S. public opinion polls conducted during the years of civil war in China indicated a constant increase in the percentage of those in favor of supporting the Guomindang and Chiang Kai-shek: 11 percent in 1946, 18 percent in 1947 and 31 percent in 1949.<sup>2</sup> The upsurge of pro-Guomindang feelings in the United States was the result of a vigorous campaign launched by conservative elements of ruling circles within the context of the anticommunist hysteria in the nation. But the Americans, despite their obvious sympathy for the Guomindang forces trying to win favor from the United States, still adhered, in the majority of cases, to more "neutral" views.<sup>3</sup> There is ample reason to assume that the "popularity" of the Guomindang was limited to scales that were far from sufficient to constitute an obstacle in the way of the establishment of normal diplomatic communications with the PRC. Nonetheless, even this level of pro-Guomindang feeling gave reactionary circles an opportunity to manipulate the semblance of public "support" for Washington's discriminatory policy of "containing and isolating" the PRC.

The process by which ideas about China were given political overtones became more intensive when war broke out in Korea, and the beginning of this intensification can be quite precisely fixed at the time when Chinese volunteers joined the fighting on the side of the DPRK in October 1950. Whereas around 20 percent of all Americans "supported" the new state of the PRC at the time it was founded, the participation of Chinese volunteers in the Korean war reduced this "support" by approximately half. Nonetheless, even under these conditions, only slightly more than a third of the individuals surveyed were prepared to fight in Korea or send their relatives to fight in this war. At that time, more than 50 percent regarded U.S. involvement in this war as a "mistake." Therefore, U.S. sociopolitical thinking of that time showed

evidence of extremely strong "neutralist" feelings as well as a realization of the danger of confrontation with the PRC and a reluctance to become involved in overt hostilities against China.<sup>4</sup>

The events in China, however, served as major stimulus in the mobilization of official propaganda encouraging the growth of hostile feelings toward the PRC. In this context, the policy line and concepts of the Eisenhower-Dulles Administration served as the main ideological basis for the doctrine of "containment and isolation." Certain basic political propaganda stereotypes were cultivated in the American mentality--and quite effectively--in regard to the internal development of the PRC, such as "poverty," "oppression" and "repression." These stereotypes remained virtually unchanged throughout an entire decade--until the mid-1960's.

An analysis of the average American's feelings about the Chinese people and their national traits can be facilitated by the comparison of two surveys conducted in 1942 and 1966, when respondents were asked approximately the same questions about the most typical Chinese characteristics. For example, in 1942, after the attack on Pearl Harbor, most Americans regarded the Chinese, who were fighting against imperial Japan, as "hard-working," "honest" and "courageous" people. In 1966 they were being called "ignorant," "belligerent," "cowardly" and "treacherous."<sup>5</sup>

The feelings of the general public during the time when the American Government was conducting its policy of "containment and isolation" can be judged to some extent by the results of surveys connected with the problem of granting the PRC its legitimate place in the United Nations. It was precisely this problem that was used by right-wing conservative groups in the United States as an instrument of support for pro-Taiwan propaganda; the approach to this problem on the part of the American masses should be considered an indicator of the intensity of anti-Chinese feelings. In particular, the relative regularity of these polls is of great significance in their assessment. Up to the end of 1971, 25 had been conducted.<sup>6</sup> The data of polls regarding the admittance of the PRC to the United Nations indicate that the "curve" of anti-Chinese feeling, which essentially corresponded to the voicing of protests against the PRC's admittance to the United Nations, seemed to follow, on the whole, official trends in the interrelations between the two countries, but with a slight delay. Throughout the 1950's and the early 1960's, from 60 to 80 percent of all those surveyed occupy an overtly negative position in regard to the PRC. A more or less benevolent approach was only demonstrated by no more than 10-20 percent.<sup>7</sup>

Tendencies in the Americans' approach to the possible line of action in the hypothetical situation of a "Chinese invasion of Taiwan" are also of great interest. Throughout the period in question, only 10 percent of those surveyed were in favor of bombing the PRC; approximately 20 percent favored total neutrality for the United States. Most of the Americans adhered to a middle ground, regarding it as expedient to either send additional American troops to Taiwan in the nature of a "warning" or to increase military shipments to the Guomindang regime.<sup>8</sup> Therefore, most of the Americans

were inclined toward caution and objected to direct U.S. participation in a potential conflict between Beijing and Taipei.

One important feature of the American public's view of China at that time was the mounting concern, apprehension and, to some extent, even alarm in people's feelings about the PRC. This mood was largely a result of the Chinese leadership's ostentatious line of disseminating the Maoist model of "people's war" and Beijing's negative attitude toward the very possibility of peaceful coexistence between states with differing socioeconomic systems. This line had the predictable effect on American views. It should also be noted that the year of 1963 was marked by an important event in Soviet-American relations: the signing of the treaty prohibiting the testing of nuclear devices in the three spheres. The Beijing leadership had a dramatically negative reaction to the conclusion of this agreement, and this also increased American concern over the PRC's intentions. Americans blamed this mounting concern on the development of the PRC's nuclear potential and the invariably aggressive tone of official Chinese statements.

Increased suspicion of China was also recorded in 1967, when 71 percent of the Americans were already calling the PRC a "direct threat." In this survey, the main reason cited by respondents for their opinions was the "hostile nature of Chinese foreign policy." Besides this, 1967, as we know, was the year when the "Cultural Revolution" was in full swing, and it served as another factor which reinforced the view of the PRC as a hostile power.<sup>9</sup>

In summation, we could say that mass public opinion on Chinese matters in the 1960's as a whole was heavily weighted against China.

A new stage in the development of mass sociopolitical thinking in the United States in regard to China began at the end of the 1960's. Its main feature was the reaction of the American public to certain advances along the "Beijing-Washington" line. This stage, which, in the broad sense, is still going on, has been distinguished by the alternation of four basic stages marked by fairly precise time boundaries.

During the first stage--approximately from the end of the 1960's through 1972--there was a slow and externally quite sluggish evolution of U.S. public opinion in the direction of heightened interest in positive changes in U.S.-Chinese relations. The trip made by President R. Nixon to the PRC in 1972 was a turning point, marking the end of this stage and the beginning of a kind of reversal in attitudes toward matters pertaining to China. A new stage began, distinguished by an upsurge of interest in the PRC and a touch of sensationalism attached to all aspects of progress along the "Beijing-Washington" line. The chief factor determining the attitude of broad segments of the American public to this matter consisted in the artificial creation of an atmosphere of heightened expectations about future U.S.-PRC contacts. During this stage, one important natural tendency in U.S. internal political life quite objectively became apparent--the ability of the ruling administration and the President to effect major changes in the sociopolitical climate of the nation whenever necessary by means of active and purposeful effort. The radical and



externally sensational initiative of the Republican Administration, which launched an intergovernmental dialog with Beijing, the China trip of President R. Nixon and other official actions all brought about qualitative changes in the average American's approach to the China issue.

A third phase in the evolution of U.S. public opinion within the boundaries of the stage in question began approximately in the mid-1970's, when the American public sobered up to some extent from the unjustified hopes aroused by the White House's "sensations" in the "Chinese direction." Interest in China declined, the sensation lost its edge and a more balanced sociopolitical view of the actual state of affairs became noticeable.

Finally, the beginning of the fourth period was marked by the establishment of full diplomatic relations. During this stage, a curious situation took shape in the United States, in which, on the one hand, a powerful propaganda campaign was launched to stimulate "favorable feelings" for Beijing, while, on the other, the reaction of the American public turned out to be quite restrained. Here, naturally, an extremely important role was played by Beijing's attack on the SRV, which dissipated much of the "Chinese euphoria." In any case, new propaganda efforts cannot now renew the "heightened expectations" of the early 1970's; perhaps the only exception to the rule is the business community, which is displaying a keen interest in the Chinese market.

In brief, these were the characteristic features and basic phases of the present stage in the development of U.S. sociopolitical thinking in regard to Chinese matters. From the specific and practical standpoint, the following factors have been of greatest significance in this period.

As has already been pointed out, by the end of the 1960's, by the time the Republican Administration took office, views on matters pertaining to China were still "heavily weighted against Beijing." "In 1970," American researcher R. Salomon asserts, "it did not seem probable that the American public could fall into the trap of the illusions about China that were characteristic of previous generations, who hoped that our philosophy, religion and technology would be able to transform this country in accordance with American traditions and values.... As soon as the American Government began moving toward normalization, however, we once again saw mass public opinion undergo a radical shift in the direction of this mood."<sup>10</sup>

The appearance of characteristics attesting to the development of new tendencies in the American public's approach to the Chinese issue was, to a considerable (and perhaps even decisive) degree, connected with the internal political struggle in the United States over the nation's most pressing and immediate foreign political problem--the aggressive war in Indochina.

In spite of the remaining concern, apprehension and even alarm in regard to Beijing's intentions in the international arena, in spite of the fact that "pro-Taiwan" feelings still prevailed and in spite of the presence of pointedly negative opinions concerning the internal situation in the PRC--that is, all that constituted the essence of the "anti-Beijing undertones" in U.S.

public opinion, the belief that it would be better to engage in a dialog with Beijing instead of supporting confrontation on the previous scale nonetheless began to gain firm hold in the mass U.S. mentality. This apparent contradiction was nonetheless quite natural. It was at this conclusion that Americans arrived after they became conscious of the general crisis of U.S. foreign policy in Asia. According to many Americans, it would be more expedient to negotiate with the PRC, particularly as it had become a nuclear power.

In connection with this, the series of "small steps in the direction of Beijing" taken by the White House not only failed to arouse any significant opposition from the average American, but even contributed to a slight "erosion" of anti-Beijing feeling. But this process was a fairly slow one. Judging by public opinion polls in regard to the problem of UN representation for the PRC, it was not until spring 1971 that the number of persons in favor of the PRC's admittance to the United Nations exceeded the number of persons opposed to this course.<sup>11</sup> In general, this kind of "restraint" did not presage any special outburst of pro-Beijing feeling.

After the plans for R. Nixon's visit to Beijing were announced, however, the situation changed radically. A different approach to the PRC prevailed--fairly quickly and without any particular complication. By that time, large segments of the American public were quite aware of the futility of the bloody war in Vietnam, which was absorbing more and more human and material resources. In addition, the Americans were encountering an increasing number of unsolved international social problems. It was in this atmosphere that many people were temporarily carried away by the "sensational" nature of the White House's initiative, which looked to them like a "ray of light" in the gloom of their difficulties. It is probable, however, that the main factor contributing to the positive public reaction to the U.S. President's Beijing visit was the energetic and purposeful propaganda campaign launched at that time in the United States.

According to the data of polls, 73 percent of the Americans were in favor of Nixon's trip to Beijing. A WASHINGTON POST report based on the data of the Harris service stated that "the American people expected Nixon's trip to result in two important advances: the expansion of trade, which was mentioned by 63 percent (of the respondents), and the establishment of diplomatic relations, which was favored by 58 percent."<sup>12</sup>

The seemingly firm feelings of "dislike" for the Chinese, which had long been cultivated by propaganda and the official policy of nonrecognition of the PRC, did not in general, as it turned out, have very deep roots. For example, in 1972, Americans were already given positive responses to the question about the characteristic features of the Chinese nationality. At the same time, as commentaries on the results of surveys noted, the positive view of the Chinese people's national features in American sociopolitical thinking did not in any sense mean that this positive opinion could automatically be extended to the nature and prospects of intergovernmental relations between the United States and the PRC.<sup>13</sup> The sensational nature of the trip was the

reason for the Americans' interest in it; 98 percent of the population kept up with the news of the trip, or more than had taken an interest in almost any other political event in previous years.<sup>14</sup>

The subsequent development of U.S.-Chinese intergovernmental relations was given extensive and extremely positive coverage in the American mass media, which went a long way toward reinforcing the positive feelings of the Americans for the PRC. In a survey in which Americans were asked about the most important news events of 1974, H. Kissinger's visit to China was in third place (67 percent).<sup>15</sup>

Nonetheless, the serious contradictions and difficulties that soon arose in American-Chinese relations, among which the actual refusal of the Beijing leaders to engage in any kind of disarmament talks played an important role, considerably diminished these favorable feelings. A study of American views on various aspects of U.S. bilateral relations with other states, conducted in May 1976, revealed much less optimism in regard to China than in 1974.

Approximately the same tendencies were confirmed by a public opinion poll conducted just before the second Beijing trip by an American President, this time G. Ford, in 1975. This visit was supported by 68 percent of the respondents (73 percent in 1972), while 23 percent had a negative reaction to it (21 percent in 1972). Only 11 percent were in favor of the full and unconditional recognition of the PRC (with the severance of relations with Taiwan). It is indicative that this view was held by up to 20 percent of all respondents in 1949 while the figure dropped to 8 percent during the war in Korea.<sup>16</sup>

Therefore, the number of persons advocating the unconditional development of relations with the PRC essentially remains unchanged. The development of the intergovernmental dialog between Washington and Beijing did not increase this number at all.

The greatest changes in the public mood took place in a different area--the question of unconditional support of Taiwan. During the cold war, the practice of isolating the PRC and maintaining comprehensive relations with Taiwan was supported by up to 80 percent of all respondents,<sup>17</sup> but the figure dropped to 21-23 percent in the mid and late 1970's. The majority took an intermediate position: From 50 to 70 percent of all respondents were in favor of diplomatic recognition of the PRC with the maintenance of relations with Taiwan, and more than 50 percent generally had a negative opinion of the prospect of breaking off relations with Taiwan as a condition for establishing relations with the PRC. In other words, there was a considerable shift in American public opinion from the position of nonrecognition of the PRC to the platform of "two Chinas."

There was some ambiguity in the American public's approach to the main area of disagreement between the United States and the PRC. In fact, Gallup polls showed that 56 percent had positive feelings about Taiwan in 1977 while 26 percent favored Beijing.<sup>18</sup> This ultimately led to negative feelings on the

part of the majority of the American public in regard to the proposed severance of diplomatic relations with Taiwan for the sake of normalized relations with Beijing. Moreover, there was a tendency toward increased "pro-Taiwan feeling" on the part of the American public in the second half of the 1970's.

At the same time, quite a few surveys recorded another fact: American opposition to direct U.S. involvement in Taiwan's defense.<sup>19</sup> Therefore, on the one hand there was the desire to preserve diplomatic relations with Taiwan, but on the other there was a reluctance to take direct military action to "guarantee the security" of the island.

In addition to this, the American public (71 percent of all respondents) was worried that rapprochement with the PRC would make the entire world regard the United States as Beijing's ally against the Soviet Union, which might escalate tension and would be dangerous for the United States.

Considering these tendencies in the development of public opinion in regard to China, the Carter Administration's decision to recognize Beijing and break off diplomatic relations with Taiwan aroused a wholly unpredictable response in the American public. The results of a poll conducted at the end of December 1978 by the NEW YORK TIMES in conjunction with the Columbia Broadcasting System indicated that the decision to establish diplomatic relations with Beijing had created a certain amount of confusion. On the one hand, the Americans supporting the establishment of closer relations with China no longer constituted an overwhelming majority of the public and, on the other, they were not particularly enthusiastic about supporting Taiwan either. Although 45 percent of the respondents (as against 27 percent) believed that the U.S. President should not establish closer relations with "communist China" if this should necessitate the severance of relations with Taipei, 28 percent declared that Beijing should be regarded as the "official government of all Chinese." Another 22 percent expressed the view that Taipei should be recognized, and 21 percent were in favor of recognizing "both regimes."<sup>20</sup>

These data confirmed the degree to which the "average" American is influenced by the particular "presentation" given to a specific political action by politicians and the press. In view of the fact that there are considerable disagreements on this matter among professional politicians (and each group is defending its viewpoint without providing the general public with a serious analysis of the course of events), the "average" American is unconsciously caught between extreme viewpoints.

Three other aspects of Carter's plans for China were obviously disapproved by the public:

Some 47 percent (as against 43 percent) of all respondents opposed the "continued sale of U.S. weapons to the nationalist government on Taiwan," and this negative reaction was aroused by the general growing uneasiness that the United States was the largest supplier of weapons in the world;



Around 57 percent (as against 29 percent) criticized the administration's position that the United States should now formally recognize "Taiwan as part of mainland China";

Some 52 percent (as against 32 percent) reacted negatively to J. Carter's reports that "by the 1980's the United States will annul its defense agreement with the nationalist government on Taiwan" (this plan, incidentally, is being challenged in the courts by some members of Congress).<sup>21</sup>

Therefore, the approach of the public to the normalization of relations between Washington and Beijing turned out to be far removed from unanimous support for the plan to strengthen them. Apparently, it was precisely the presence of extremely substantial negative feelings within the United States (if not real opposition) in regard to the initiative of the Carter Administration that motivated ruling circles to intensify the propaganda concerning the "new relationship" with Beijing.

In connection with this, particular attention was focused on preparations for the impending first U.S. visit by a high-level Beijing leader. Deng Xiaoping's stay in the United States, as we know, was turned into a genuine propaganda "show." Despite all of the massive propaganda efforts and all of the monotonous "favorable" references to Beijing and its political line, however, the main goal does not seem to have been attained. It can be said that the most important feature of the American public's attitude toward Washington's current policy on the Chinese question is the perceptible opposition to the administration's attempts to play the "Chinese card" to the detriment of Soviet-American relations. This trend in the development of public opinion has recently become much stronger.

If we compare the approach of Americans to the problem of relations with China on one side and the USSR on the other, priority is obviously being given to relations with the USSR on the strength of their significance for stronger international security and deeper detente.

The question of whether Beijing should be supported in its anti-Soviet activity has been frequently asked in public opinion polls. In this area, the Americans took an unequivocally negative approach to the tactic of playing the "Chinese card" from the very beginning. For example, an analysis conducted in 1977 by Potomac Associates showed that 70 percent were against any assistance of Beijing in its attempts to build up its strategic military potential.<sup>22</sup> These feelings became even stronger in 1978 and 1979, when 81 percent of all respondents, as against 11 percent, objected to proposed shipments of electronic and military equipment to the Beijing regime. The Americans, as R. Salomon pointed out in an article printed in FOREIGN AFFAIRS, are not inclined to support any exploitation of the conflicts in interrelations between the USSR and the PRC.<sup>23</sup>

These trends in U.S. public opinion underwent further development after China's criminal attack on Vietnam. Naturally, only time will tell the full extent to which the American public's approach to "Chinese subject

matter" has been affected by the PRC's aggression. We can already say, however, that the impact of this action will take forms, increasingly negative for Beijing, on the American internal political scene. The Americans have begun to realize much more clearly that China is a serious threat to peace.

Even during the initial stage of the conflict, there was mounting concern in the United States that the hostilities in Indochina might go beyond regional boundaries and start an unpredictable chain reaction. Furthermore, the Chinese invasion of Vietnam exposed, as never before, the hegemonistic essence of Beijing's policy, the adventurism and militarism of the Chinese leadership and the ease with which it would resort to the use of military force to attain its own great-power goals. All of this, in particular, contributed to heightened apprehension in the United States in regard to the possibility of similar ventures against other Asian countries, particularly those closest to China. And these states were connected with other countries by specific international obligations. As prominent American columnist J. Kraft put it, it became clear that China was willing to engage in future adventures that would affect, "to the same degree," the interests of the United States and the USSR.<sup>24</sup>

The Chinese aggression helped the American public to realize the accuracy of the position taken by those politicians who had doubted the expediency of "playing the Chinese card." In turn, the dangerous appeals to "give China access to the military, scientific and technical arsenals of the West" and to make a stronger move in Beijing's direction were largely discredited. Those who had recently given Deng Xiaoping such a hearty welcome to the United States were faced with a reality which definitely contradicted the statements that rapprochement with Beijing was supposedly necessary for the creation of a "new balance of power in the world" for the purpose of "guaranteeing the prospect of a peaceful life." Criticizing the American Government, the NEW YORK TIMES reported at that time that "the President should probably have learned more about what Deng Xiaoping had in mind for Vietnam during his stay in the United States and should have resolutely warned him not to entertain any ideas of invading this country."<sup>25</sup>

The results of a public opinion poll published in the NEW YORK TIMES on 4 March indicated that many Americans were accusing the White House of a lack of foresight and of a dangerous flirtation with the Beijing militarists. Almost half of all respondents were worried that Beijing's actions in Vietnam could lead to a "major war"; 75 percent were afraid that the United States might be drawn into an armed conflict; more than a third expressed alarm over the signs that "U.S. policy is leaning more and more in Beijing's direction."<sup>26</sup>

Analyzing the effects of the Chinese aggression on American public opinion, Gus Hall, secretary general of the Communist Party of the United States of America, said: "The majority of Americans...condemn aggression. This fact, as well as protest throughout the world, played a definite role in the cessation of the Maoist aggression."<sup>27</sup>

But it must also be said that the American public still lacks a clear understanding of the causes and nature of Chinese aggression: This is the reason for the contradictory nature of public opinion. To a certain degree, this has resulted from the fact that Washington's official position and reports in the establishment press (particularly at the beginning of the conflict) were aimed either at covering up its true essence and its scales or at whitewashing the aggressor. As the INTERNATIONAL HERALD TRIBUNE reported at that time, "the State Department is still protecting the press and the public from 'hot news items' from the zone of combat."<sup>28</sup> The mass media preferred to imply that China had some reason to "teach Vietnam a lesson." The press continued to publish articles stressing the "positive" aspects of the "new" U.S.-Chinese relations, which had been revealed at the time of Deng Xiaoping's trip and in subsequent steps toward U.S.-Chinese rapprochement, as if nothing else was going on in the world at that time. Nonetheless, despite this position which was taken by many press organs, the negative feelings of Americans in regard to Beijing were obviously increasing. The WALL STREET JOURNAL admitted that "it must be said that Beijing has come out of this war with a tarnished reputation and a broken nose."<sup>29</sup>

When we try to discern the actual approach of the American public to the interrelations between the United States and China, we should consider another specific factor. The reactions of respondents depend largely on the wording of questions. It is not difficult to imagine that the American attitude toward Beijing would be even more negative if questionnaires made mention of such issues as Beijing's actual refusal to negotiate the limitation of the arms race, its continuous testing of nuclear devices in the atmosphere and so forth. But debatable issues and conflicts in U.S.-Chinese relations are being deliberately ignored not only in the wording of questions by sociologists, but also in the press and in statements by government leaders.

As we know, an increasing number of Americans are advocating consolidation of the process of detente and cooperation with the Soviet Union and are opposing any efforts to undermine detente. This trend was quite clearly reflected in a recent study conducted by the Gallup Institute at the end of April 1979. In particular, it indicated that Americans attached much greater significance to relations with the Soviet Union than to relations with China.<sup>30</sup>

Therefore, sociopolitical thinking in the United States on the Chinese question has represented an extremely complex and contradictory phenomenon in the second half of the 1970's. On the whole, the "ebb" and "flow" of public interest in China and in U.S.-Chinese relations and the degree of "negativism" or "friendliness" toward Beijing will obviously depend on the policy line of the ruling administration. In other words, trends in mass public opinion generally follow the dictates of official propaganda, which determine and engineer the development of mass attitudes toward China and the China policy of the United States.

At the same time, there is a considerable discrepancy between the views of the American public and the policy of ruling circles in some extremely important areas. This discrepancy became more pronounced when the Beijing aggressors attacked the Socialist Republic of Vietnam. The reasons for this lack of correspondence between public opinion and the administration's policy can be found in the fact that it is now difficult to hide from the American people, despite all of the subtle indoctrination to which they are being subjected, the principles and practice of the constructive foreign policy of the USSR and the other countries of the socialist community, which oppose the attempts being made by Beijing and more reactionary circles in the United States to bury detente and escalate international tension.

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## LABOR PRODUCTIVITY IN THE UNITED STATES AND JAPAN (PROCESSING INDUSTRY)

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[Article by A. M. Gindiyev]

[Text] V. I. Lenin wrote that the "development of capitalism is highly nonuniform in different countries. This is the only possibility with commercial production."<sup>1</sup> This nonuniformity is expanding the front of struggle between imperialist powers and between their monopolies, intensifying industrial and commercial competition, escalating their financial and currency wars and intensifying their rivalry over energy and raw material problems. Inter-imperialist conflicts grew particularly acute in the 1970's.

The present stage in the inter-imperialist struggle is distinguished by Japanese imperialism's active involvement in it.

As a result of several temporary objective factors, Japan's rate of economic development in the postwar period has been unprecedented in the capitalist world. It has become one of the most highly developed capitalist countries and has begun to crowd its rivals out of world markets. Having achieved a par with the United States in terms of many economic indicators, Japan has challenged and, in some areas, undermined the traditional hegemony of U.S. monopolies. The situation in many commercial markets today depends on the fierce competition between American and Japanese monopolies. This lends even more topical significance to a comparison of the economic potential of the two countries.

The factor of higher labor productivity played a special role in Japan's advancement to a leading position in the capitalist world. The considerable savings on live labor due to relatively cheap manpower allowed Japanese monopolistic capital to gain a strong position in the world market and become one of the United States' most powerful competitors.

From the standpoint of ensuring necessary conditions in the competitive struggle, the decisive economic sphere is the processing industry--the major branch of physical production and the "motor" which puts all other branches of the economy in motion. This is the only branch that produces tools of labor--the

leading component of the means of production--for the entire national economy. It is precisely in this branch that the majority of scientific and technical projects are carried out to perfect means of production. The branch is also highly significant in the production of industrial commodities in mass demand and in the market for these commodities.

This is why a study of the dynamics and levels of labor productivity in the processing industry and the factors determining them constitute the necessary basis for evaluating the general scales of the production potential of each country, rates of scientific and technical progress, the public standard of living and the position occupied by the national economy in the system of world economic ties. The purpose of this article is to establish, on the basis of estimates of production volumes and employment figures, the levels and dynamics of labor productivity in the processing industries of the United States and Japan and to determine the specific factors on which this indicator depends.

Calculations show (see Table 1) that the gap between levels of labor productivity in Japan and the United States is closing quite quickly: Whereas the correlation was 23.8 percent in 1955, the figure had risen to 64.6 percent in 1975<sup>2</sup> (with the U.S. level representing 100 percent). The highest (relative) rates in the development of this process were seen in the 1960's. During this time, the correlation figure almost doubled. Later, the gap closed at a slower rate, and at the time of the world economic crisis of 1974-1975, which had a comparatively more severe effect on Japanese industry, the gap between levels of labor productivity in these countries increased for the first time since the war.

Japan came closest to the U.S. level in machine building and metallurgy, primarily ferrous. In these branches, the nation made particularly noticeable progress in the improvement of production equipment and technology. The difference was more sizable in the chemical industry, petroleum refining, construction materials manufacture, light industry and the lumber and wood-working industry. The most substantial lag was apparent in the food industry.

These tendencies are the result of a group of factors reflecting the social, technical and economic conditions of the reproduction of social capital in these countries. "The productive force of labor," K. Marx wrote, "depends on a variety of circumstances--among others, the average level of worker artistry, the developmental level of science and the extent of its technological application, the social makeup of the production process, the proportions and effectiveness of means of production, and natural conditions."<sup>3</sup>

The numerous factors involved in the modification of labor productivity makes their correct classification an essential condition for their analysis. A traditional system has taken shape in economic literature for this kind of analysis. At first, changes in the capital-labor ratio<sup>4</sup> are examined, then the characteristics of live labor and, finally, the scientific and technical factors of production growth. This system of classification does not seem to be strict enough in the scientific sense. Its main defect is

the relegation of factors connected with scientific and technical progress to a separate group. But we could hardly imagine an absolutely autonomous type of technological progress, unconnected with changes in personal and physical elements of productive forces. Scientific knowledge affects labor productivity in a variety of ways. It can be embodied in new production equipment and technology, in management techniques and in the quality of manpower--in terms of qualifications and general educational background. In itself, progress in knowledge cannot increase the results of production; this requires that knowledge take material form in better machines and the creation of the proper production conditions with the mandatory modification of the nature of labor and the qualifications of workers.

Table 1

Correlation of Labor Productivity Levels in Branches of Japanese and U.S. Processing Industries, % (United States=100%)

Branches	1955	1960	1965	1970	1974	1975
Processing industry as a whole	23.8	28.0	31.6	51.2	69.0	64.6
Metallurgy	16.8	25.9	45.5	71.5	96.5	96.1
Breakdown						
Ferrous	18.1	29.4	48.8	72.3	104.5	65.8
Nonferrous	16.4	23.8	33.4	48.5	70.2	65.8
Machine building and metal processing	22.8	28.1	43.5	68.0	88.1	81.7
Chemicals and oil refining	27.8	35.1	34.3	52.1	61.0	62.9
Construction materials manufacture	31.8	32.3	39.3	61.4	75.8	72.4
Lumber, woodworking and pulp and paper industry	25.1	22.0	37.8	49.0	53.3	58.2
Light industry	32.0	35.7	37.1	56.1	60.8	70.2
Food industry	13.0	15.6	17.9	20.7	23.3	22.4
Others	21.2	24.6	30.8	51.0	67.8	65.4

Calculated according to: "Census of Manufactures 1972," Washington, 1975; "The National Income and Product Accounts of the United States, 1929-1965," Washington, 1966, pp 104-105; SURVEY OF CURRENT BUSINESS, No 7, 1969 p 40; No 7, 1973, p 42; No 7, 1976, p 51; "Statistical Abstract of the United States, 1975" Washington, 1975, p 731; "KOGYO TOKEI HYO 1972," Tokyo, 1975; "Japan Statistical Yearbook, 1957," Tokyo, 1957, p 352, 353; Ibid., 1965, pp 242, 243, 414, 415; Ibid., 1975, pp 70, 71; QUARTERLY JOURNAL OF PRODUCTIVITY STATISTICAL, No 71, 1976, pp 9, 12, 13.

In connection with this, it seems more expedient to distinguish between only two groups of factors involved in the modification of labor productivity--material and non-material. The first group takes in all factors connected with the development of the means of labor, including factors determining changes in the scientific and technical level of equipment. The second takes in factors which bring about a change in intellectual potential--the volume of accumulated scientific knowledge, the education and qualifications

of workers and the level of the management of economic processes. The advantage of this classification system consists in the fact that the examination of factors connected with technological progress is part of the analysis of changes in elements of productive forces which bring about a rise in labor productivity levels. This makes it possible to consider not only the effect of all means of labor, but also the modification of their scientific and technical level. Besides this, this system for the division of factors assumes the equivalence and unity of material and non-material sources of labor productivity growth.

#### Material Factors

When workers are equipped with more of the basic means of labor, their labor is given a new quality--the ability to produce more in each unit of work time with the same expenditures of mental and physical energy. This allows businessmen to increase their volume of unpaid labor and thereby guarantees more favorable conditions for the continued reproduction of capital. The technical and economic side of this process consists in the fact that there are relationships, specific ones for each type of reproduction, between a rise in the capital-labor ratio and increased labor productivity. These relationships reflect the nature of the investment process, the scientific and technical level of fixed capital and the degree to which it is utilized effectively.

In the postwar period, the investment process in the Japanese processing industry has been distinguished by an extremely high level of intensity. Its basis was the need to restore the war-ravaged production system and remodel it with a view to scientific and technical achievements. Between 1950 and 1960 the average annual growth rate of gross capital investments in Japan was 16.2 percent, between 1960 and 1970 it was 14.7 percent, and throughout the 1950-1975 period as a whole it was 15.7 percent, while the respective figures in the United States were only 4.1, 5.5 and 4.2 percent.<sup>5</sup> As a result, as a comparison of absolute volumes of capital investments shows, by 1970 the level of investments in the Japanese processing industry was 16 percent higher than in the United States. In 1975 total capital investments in metallurgy were 63 percent higher, and in machine building the figure was 26 percent. At the same time, light industry and the food industry were lagging by almost half. On the whole, total capital investments in all branches of the Japanese processing industry in 1975 were 11 percent greater than in the United States.<sup>6</sup>

The peculiarities of the investment process in the processing industries of these countries predetermine the relative dynamics of fixed capital and the capital-labor ratio. The growth rate of fixed capital between 1950 and 1975 in Japan was more than 4 times as high as in the United States, and the capital-labor ratio was almost 4 times as high. These rates were particularly far ahead of U.S. rates in the 1960's. At this time, the gap between the labor productivity levels of both countries began to close more quickly. The highest rise in the capital-labor ratio in Japan was seen in machine building, metallurgy and the chemical industry. It was in these same branches that the most impressive increase in labor productivity was noted (see Table 2).

Table 2

## Capital-Labor Ratio in Processing Industry, Thousands of Dollars, 1970 Prices

Отрасли	1965 г.			1970 г.			1975 г.			(4) Среднегодовые темпы роста					
	(2)		(3)	(2)		(3)	(2)		(3)	1965-1970 гг.		1970-1975 гг.		1965-1975 гг.	
	США		Япония	США		Япония	США		Япония	(2) США		(2) США		(2) США	
	(3)		(3)	(3)		(3)	(3)		(3)	(3) Япония		(3) Япония		(3) Япония	
(5) Обрабатывающая промышленность	15,5	5,0	10,8	5,2	23,1	14,5	26,0	21,8	2,5	0,8	1,5	10,7	2,7	8,5	2,1
(6) В том числе															
(7) машиностроение . . . . .	6,7	2,2	10,3	2,5	11,9	8,2	13,2	12,4	4,4	2,6	1,4	12,6	2,0	8,7	2,7
(8) металлургия . . . . .	25,7	10,8	31,8	10,8	37,3	33,0	43,6	49,8	2,2	0,5	1,4	11,8	3,1	8,6	2,1
(9) химическая и нефтеперерабатывающая индустрия . . . . .	33,3	6,1	53,2	10,7	60,2	37,4	70,6	54,3	4,5	11,9	1,2	13,3	3,2	7,7	2,9
(10) легкая . . . . .	5,3	2,7	5,9	2,8	6,7	4,8	7,6	6,4	1,1	0,8	1,5	5,4	1,9	5,9	1,4
(11) пищевая . . . . .	16,4	8,1	15,6	3,0	18,5	7,8	21,4	12,0	-0,5	0,5	1,7	10,1	3,0	9,1	1,1
(12) прочие отрасли . . . . .	13,7	2,7	14,5	2,9	14,2	8,8	15,5	14,1	-0,5	1,4	0,2	11,6	1,8	10,1	0,4

Calculated according to: "Annual Survey of Manufacturing," eds for corresponding years; SURVEY OF CURRENT BUSINESS, No 7, 1968, p 49; No 7, 1972, p 47; No 7, 1975, p 14; No 7, 1976, p 88; "Japan Statistical Yearbook," eds for corresponding years; J. Kravis, Op. cit., p 176.

## Key:

1. Branches
2. United States
3. Japan
4. Average annual growth rates
5. Processing industry
6. Breakdown
7. Machine building
8. Metallurgy
9. Chemical and oil refining industry
10. Light industry
11. Food industry
12. Other branches



The close relationship between rates of rise in labor productivity levels and the capital-labor ratio during different periods and different branches of the Japanese processing industry suggests that the relative speed with which workers were equipped with more tools of labor in this nation became the deciding factor in its rise to the U.S. level of output per worker.

Table 3

Correlation of Labor Productivity Levels and Capital-Labor Ratio in Japanese and U.S. Processing Industry, % (United States=100%)\*

Branches	Labor Productivity				Capital-Labor Ratio			
	1955	1960	1970	1975	1955	1960	1970	1975
Processing industry	23.8	28.0	51.2	64.6	32.2	26.3	62.6	83.8
Machine building	22.8	28.1	68.0	81.7	32.8	24.3	68.8	94.4
Metallurgy	16.8	25.9	71.5	96.1	42.0	33.8	88.4	114.2
Chemical and oil refining industry	27.8	35.1	52.1	62.9	17.8	20.1	62.1	76.8
Light industry	32.0	35.7	56.1	70.2	50.9	48.3	70.0	84.7
Food industry	13.0	15.6	20.7	22.4	18.9	19.1	42.0	56.1
Other branches	21.2	24.6	51.0	65.4	19.7	20.0	61.4	91.0

\* The direct comparison of capital was accomplished with the aid of the equivalence calculations of Kravis' group for individual elements of capital investments.

But this relationship is not universal in character. Experience in comparisons of the U.S. and Japanese processing industries indicates that the explanation of correlations of labor productivity levels by means of differences in capital-labor ratios is now becoming increasingly unsatisfactory. As we can see from Table 3, the difference between capital-labor ratios in the United States and Japan is diminishing rapidly. In 1975 this indicator for the Japanese processing industry as a whole was only 16 percent lower than in the United States. In machine building, the lag was minimal, and in metallurgy the Japanese capital-labor ratio was already 14 percent higher. Table 3 also demonstrates that Japan came closer to the United States in terms of capital-labor ratio than in terms of productivity.

All of this suggests that output per worker does not depend simply on the total accumulated means of production used by each worker. The technical level of fixed productive assets and the efficiency of their utilization are of special significance. Assets with the same total value can differ significantly in terms of quality, condition, degree of utilization, technological specifications, etc. The capital-labor ratio consists not so much in the number and total value of machines and pieces of equipment used by the worker as in the capability of machines to embody the achievements of progressive scientific and technical thought. The accumulation of fixed capital was defined quite broadly by K. Marx--as an increase in the efficiency, dimensions and value of the means of production. He stressed, in this

way, the role played by changes in its physical composition and efficiency and assumed a direct relationship between accumulation and technological progress.

The augmentation of fixed capital in the United States and Japan in the postwar period was distinguished by several progressive changes which increased the contribution of material factors to labor productivity growth. The technical level of the means of production and their level of efficiency were constantly rising. This was reflected in the rising proportion accounted for by fixed capital in the newest branches, which require the greatest scientific input and which accelerated technical progress as they developed, in the increased expenditures on the automation of production processes, in the relatively rapid renewal of the means of labor, in the decreasing proportion accounted for by elements of accumulation regarded as passive from the standpoint of their effect on labor productivity (buildings and structures) and in the growth of production capacities at a rate exceeding the rate of increase in the value of fixed assets.

New equipment has higher parameters than old equipment from the standpoint of its use coefficient. This has increased the contribution of material factors to labor productivity growth and has created the necessary conditions for a higher rate of rise in labor productivity levels than in the capital-labor ratio. According to calculations, in the United States the former rate exceeded the latter by 33 percent between 1955 and 1975 (the rates of rise in these variables were equivalent to 2.8 percent and 2.1 percent respectively). In Japan the rise in labor productivity was accomplished through more sizable expenditures of material resources than in the United States: The rate of labor productivity growth was only 6 percent higher than the rate of rise in the capital-labor ratio (8.1 percent and 7.6 percent respectively).

The technical levels of the means of production in the U.S. and Japanese processing industries have displayed a tendency toward equalization. This has been reflected in the fact that the equipment used in both countries is becoming increasingly identical in terms of assortment and production parameters--this is largely due to Japanese imports of the latest scientific and technical achievements. Some idea of the change in the correlation of technical levels of the means of production in these countries can be obtained from the data of a survey of representatives of 1,000 Japanese industrial firms, who were requested to compare the technical levels of the equipment used by large firms in the United States and Japan. The survey results presented below in percentage values<sup>8</sup> indicated, for example, that whereas 46 percent of all Japanese companies were lagging far behind American firms in terms of the technical level of their equipment in the 1950's and early 1960's, the figure had dropped to less than 22 percent by the early 1970's.

	Average for 1950-1966	Early 1970's
Considerable lag	46.0	21.8
Lag	32.7	3.5
Approximate equivalence	15.5	56.1
Various others opinions	5.8	18.6

The rise to the U.S. level was particularly significant in the traditional branches of Japanese industry. According to experts, the technical level of Japanese equipment in ferrous metallurgy surpasses the American level, and there is little difference in the techniques and technology used in the manufacture of household appliances and in the chemical, oil refining and electrical equipment industries.

Nonetheless, this tendency toward equalization in the equipment and technology of production in the U.S. and Japanese processing industries has not yet resulted in equivalent technical levels of fixed capital and use value coefficients. American scientific and technical superiority is most apparent in the area of electronic equipment. The U.S. processing industry uses more than 8 times as many computers as the Japanese processing industry. The proportion accounted for by computers of the third and fourth generations is also much higher in the United States, and the calculation capacity of U.S. machines is greater. Moreover, at least one-third of the computers are operating on a "split time schedule," which dramatically increases their use coefficient (in Japan the percentage accounted for by these computers is negligible).<sup>9</sup> There is an equally sizable difference in technical production characteristics, which have a direct effect on the articles of labor. For example, in the United States the value of metal-processing machine tools with programmed control at the beginning of the 1970's amounted to around 30 percent of the total value of machine tools manufactured, while in Japan the figure was only 6.1 percent.<sup>10</sup>

Table 4

Consumption of Electric Energy in Processing Industry, Calculated  
per Worker, Kilowatt-Hours

	1955	1960	1965	1970	1975
United States	17,952	22,413	26,331	30,357	36,355
Japan	4,987	6,863	9,319	15,606	21,657
Japan in relation to United States, %	27.8	30.6	35.4	51.4	59.6

Calculated according to: "Annual Survey of Manufacturing," eds for corresponding years.

The power-worker ratio in the processing industry is also much higher in the United States than in Japan (see Table 4). Moreover, the difference between power-worker ratios is much greater than the difference between capital-worker ratios. This is a sign that Japan is lagging far behind the United States in terms of the power supply of production capacities--the basis of production automation. At the same time, Japan's lag in this area is diminishing quite quickly.

In summation, it must be said that the accumulation of capital in Japan was the most important factor contributing to its rise to the U.S. level in terms of labor productivity. Nonetheless, it still has not given labor in the Japanese processing industry the same production potential that was achieved as a result of the augmentation of the means of production in the United States. The minimization of the difference between the capital-labor ratios of the two countries has still not ensured the same kind of equalization in labor productivity levels.

#### Non-Material Factors

Another important trend in U.S. and Japanese economic development in the postwar period has been the rapid growth of non-material elements of productive forces--accumulated technological and sociohumanitarian information, the store of knowledge, skills and experience and the cultural development of the labor force. When we examine this trend from the standpoint of its effect on labor productivity in the nations being compared, it should be noted that this is not simply a matter of quantitative changes in the total volume of knowledge and information, but also of qualitative changes in the system of economic priorities in the direction of non-material factors of production growth and labor productivity, connected with the improvement of the leading element of productive forces--man.

The thesis concerning the accumulation of intellectual potential as the major factor contributing to more productive labor is one of the fundamental premises of Marxist-Leninist theory. "A savings in work time," K. Marx wrote, "is equivalent to an increase in free time--that is, time for the total development of the individual, which in itself and in turn, as the major productive force, has a reciprocal effect on the productive force of labor. From the standpoint of the direct production process, the conservation of working time can be regarded as production of basic capital, and this basic capital is the individual himself."<sup>11</sup>

Under the conditions of the technological revolution, intellectual potential has played an immeasurably more important role in the enhancement of labor productivity. As was mentioned above, the deciding role in the enhancement of productivity is now played by the qualitative side of the capital accumulation process. A guaranteed high scientific and technical level of means of production depends directly on social expenditures on scientific research and the training of manpower. Expansion of the scales of research and development and the incorporation of their results in the production process accelerates the transformation of material and technical bases for production



and makes the means of production increasingly productive. As for the education received by the labor force, it represents a unique connecting link between the development of science and production, ensuring the materialization of scientific and technical knowledge and the improvement of productive forces with the aid of scientific and technical achievements. Just as branches of the first subdivision of social production guarantee that workers will be equipped with the means of production, the educational sphere guarantees that they will be equipped with knowledge and skills, which can be regarded as non-material assets which exist for a long time and are instrumental in many production cycles.

The shift in emphasis to non-material means of production in the field of worker supply can be traced in materials on the U.S. and Japanese processing industries. We will attempt to assess the level of worker supply in this sphere with non-material production assets in the form of long-lasting stores of knowledge, skills and qualifications, expressed in cost terms through the cumulative expenditures on their development.

The calculation of total knowledge in cost terms presupposes the assessment of all "strata" of asset-expenditures on science and the education of workers of various age groups. In view of the considerable complexity of this kind of statistical procedure, we will limit ourselves to the calculation of total expenditures over the 1960-1975 period in constant prices and, on this basis, we will attempt to obtain indicators of the degree to which workers in the processing industry are equipped with material and non-material assets. An analysis of these data will make it possible to judge the relative roles of material and non-material factors in the augmentation of labor productivity (see Table 5).

Table 5 shows that the volume of non-material assets accumulated in the United States between 1960 and 1975 (559.6 billion dollars) was greater than the volume of material assets (439.8 billion) and much greater (more than 3 times greater) than the volume of non-material assets accumulated in Japan (176.6 billion). Non-material assets are predominant in total production assets in the United States, while material assets constitute the majority in Japan. Although Japan has almost reached the U.S. level in terms of worker supply with material means of production (22,800 for the United States and 19,200 for Japan), it is far below the U.S. level in terms of the supply of non-material resources (28,900 and 14,800).

After summing up these results, we can say that material factors of labor productivity growth played a more important role in the Japanese processing industry than non-material factors. In the United States, on the other hand, the contribution of intellectual assets was comparatively greater.

The higher level of labor productivity in the United States is based on superiority primarily and precisely in the developmental level of non-material elements of productive forces. The U.S. experience proves that a society which develops its intellectual resources does not simply "eat up" all that has been accumulated in the sphere of physical production. Social resources are redistributed and moved from the physical sphere to expenditures on the



development of human knowledge, which promotes a rise in the qualitative level of productive resources in general and enhances their effectiveness.

Table 5

Evaluation of Some Factors of Labor Productivity Growth in Processing Industry, Billions of Dollars, 1970 Prices\*

	United States	Japan
Cumulative expenditures for 1960-1975 on		
Research and engineering	327.9	90.6
Education**	231.7	86.0
Non-material (intellectual) resources as a whole	559.6	176.6
Creation of fixed assets (pure capital investments)	439.8	229.7
Proportion accounted for by accumulated resources in total volume		
Material	44.0	57.0
Non-material	56.0	43.0
Correlation of accumulated resources, % of U.S. level		
Material	100	52.2
Non-material	100	31.6
Resources per worker (in 1975), accumulated between 1960 and 1965, in dollars		
Material	22,764	19,235
Non-material	28,965	14,788
Correlation of resources per worker, % of U.S. level		
Material	100	84.5
Non-material	100	51.0

\* The conversion of Japanese expenditures (in yen) on science and education into U.S. dollars was accomplished according to the equivalency calculation of J. Kravis' group for the sphere of education (1 dollar is equivalent to 133 yen in 1970 prices). The conversion of capital investments to 1970 prices was accomplished with the aid of an investment deflator, and the conversion of expenditures on science and education was accomplished with the aid of a GNP deflator.

\*\* The proportion of total educational expenditures used to cover the education of processing industry workers was calculated according to the proportion of national economic personnel employed in this branch with the subsequent adjustment of the resulting indicators in accordance with the coefficient indicating the degree to which the educational level of processing industry surpassed the average throughout the entire country. In the United States the figure was 1.1 and in Japan it was 1.15. Calculated according to: "Statistical Abstract of the United States, 1976," Washington, 1976, p 112; "Japan Statistical Yearbook, 1973/74," Tokyo, 1974, p 579; 1976, p 577.

Production management is also one of the non-material factors of labor productivity growth. Its effects can be seen in all aspects of economic activity and on all levels of social production. The comprehensive examination of its effects represents a separate topic and does not fit into the framework of this particular article. We will only note the effect of more intensive social division of labor--that is, production specialization and cooperation.

"This kind of specialization," V. I. Lenin said, "is, by its very nature, infinite--in precisely the same way as technical development. In order to enhance the productivity of human labor directed, for example, toward the manufacture of some part of the total product, it is necessary for the production of this part to be specialized, to become a special type of production, related to the mass product and therefore allowing for (and calling for) the use of machines and so forth".<sup>12</sup> A higher level of production specialization and cooperation will ensure, all other conditions being equal, a higher return on an increase in material means of production and a reduction in the social expense of an increment in labor productivity. This is based on the advantages of large-scale production with the latest equipment.

Table 6

Coefficients of Specialization in Groups of Branches in Processing Industry, 1972\*

	United States	Japan
Production of ferrous metal castings	91	90
Production of nonferrous metal castings	81	89
Production of cast iron and steel forgings	91	74
Production of nonferrous metal forgings	77	72
Power machine building	89	59
Agricultural machine building	84	72
Machine tool and instrument building	88	78
Production of power distribution devices and units	93	73
Production of electrical home appliances	83	80
Automotive industry	94	85
Instrument building	91	87
Food industry	92	78

\* The total value of the manufactured product of the specific branch stands for 100.

Calculated according to "Census of Manufactures, 1972," Washington, 1975; "KOGYO TOKEI HYO, 1972," Tokyo, 1975.

The development of the U.S. and Japanese processing industries has been distinguished by ever-deeper division of labor. As new commodities, intended for the mass market, have appeared, their production has grown into

increasingly independent branches (for example, the production of computers, semiconductors, electronic components and so forth). On the enterprise level, auxiliary production has become increasingly detached (for example, castings, forgings, bearings, fasteners and screws). Whereas in 1947 there were 89 foundries for each 1,000 machine-building enterprises in the United States, the figure had dropped to 34 by 1967; the respective figures for forges were 62 and 16.

The production of standard instruments and components for multisectorial use is concentrated in functionally specialized enterprises operating for the mass market. According to estimates based on census data, almost all components of general-purpose machinery are produced in intersectorial production units. They satisfy 80-90 percent of the American economy's need for fasteners and springs, approximately 70 percent of the demand for procurement goods and 50 percent of the demand for hydraulic drive parts and components. Around 10 percent of all of the employees in machine building are concentrated in this area--this is 1.5 times as many employees as in the automotive industry. According to the estimates of American specialists, this kind of production is convenient for the consumer even when the producer uses more highly skilled and, consequently, more expensive manpower, since this means that the parts and components manufactured by a larger number of competing suppliers are of better quality.

The level of labor productivity at enterprises with a high degree of specialization is much higher than at less specialized enterprises. This is attested to by calculations based on the coefficient of specialization, indicating the proportion accounted for by basic or specialty products in the total output of an enterprise or branch. There is a definite relationship between levels of specialization and labor productivity. For example, at American machine-building enterprises where more than half of the production output consists of non-specialty goods, output per worker is 1.2-1.8-fold lower than at enterprises with a level of specialization exceeding 75 percent. In Japan, according to processing industry census data, the relationship between levels of specialization and labor productivity is equally strong. What are the general quantitative parameters of specialization in the U.S. and Japanese processing industries? Coefficients of specialization (the proportion accounted for by specialty goods in total branch production) are presented in tables 6 and 7 for individual branches of this sphere, and the distribution of branches in terms of the level of specialization is indicated.

As we can see from tables 6 and 7, the level of specialization in the majority of cited branches of the processing industry is higher in the United States than in Japan. For example, the United States has only half as many branches as Japan with a level of specialization below 75 percent in machine building and metal processing, and it has a less higher percentage of highly specialized production areas. This means that a comparatively larger portion of production output is manufactured in more highly specialized branches in the United States than in Japan.

Table 7

Levels of Specialization in Branches of Machine Building, % of Total  
(1972 for United States and 1971 for Japan)

Branches	Level of Specialization							
	Up to 75%		75-80%		80-90%		Over 90%	
	United States	Japan	United States	Japan	United States	Japan	United States	Japan
General machine building	16.2	41.5	10.8	17.1	40.5	31.7	32.4	9.8
Electrical equipment and electronics industry	16.7	33.3	5.6	22.2	47.2	29.6	30.6	14.8
Transport machine building	7.7	46.7	15.4	13.3	38.5	26.7	38.5	13.3
Instrument building	--	13.6	7.8	13.6	61.5	18.2	30.8	54.5
Machine building and metal processing as a whole	13.1	27.4	9.1	18.9	45.5	30.5	32.3	23.2

Calculated according to: "Census of Manufactures, 1972," Washington, 1975; "KOGYO TOKEI HYO, 1972," Tokyo, 1975.

The superiority of the United States in terms of the degree of production specialization is based primarily on its relatively larger market for manufactured products and its higher level of production and capital concentration. It should also be borne in mind that the process by which individual production areas have turned into independent branches has taken place in a shorter period of time in Japan. The search for ways of enhancing production efficiency by means of its specialization began much later here and, for this reason, its outlines are not yet as precisely defined as in the United States.

The concentration of material means of production at highly specialized enterprises increases their return and promotes a quicker rise in labor productivity levels, exceeding the "speed" of the rise in the capital-labor ratio. The higher level of production specialization in the United States is one of the important factors that has kept this nation a leader in terms of labor productivity.

Therefore, the most important factor promoting higher labor productivity in the Japanese processing industry in the postwar period has been the relatively rapid supply of workers with material means of production. By making extensive use of foreign scientific and technical achievements, Japanese firms have been able to raise the scientific and technical level of their means of production and thereby increase their contribution to the enhancement of labor productivity. The accumulation and improvements of material components of productive forces have been accompanied by the rapid expansion of intellectual assets in the production sphere. The relative role of this factor in the enhancement of labor productivity was less significant in Japan, however, than in the United States.

In the U.S. processing industry, these factors could not ensure labor productivity growth rates as high as those in Japan. In contrast to this country, however, the rise in labor productivity in the United States was based primarily on intensive factors--a rise in the scientific and technical level of the means of production with insignificant accumulation rates, the augmentation of scientific and educational potential and the improvement of production management. This has allowed the United States to retain its superiority in terms of labor productivity and has helped it preserve its economic leadership in the capitalist world, particularly in relation to Japan. In time, however, this superiority, as we know, will diminish and will simultaneously undermine U.S. political influence.

#### FOOTNOTES

1. V. I. Lenin, "Poln. sobr. soch." [Completed Collected Works], vol 30, p 133.
2. The correlations of labor productivity in the United States and Japan used in this article were calculated after the resolution of such problems in the methodology of computation as the comparison of sub-branches and production units making up individual branches of the processing industries in both countries; the choice of production output indicators; the determination of the purchasing power of the dollar and yen for the conversion of product value into a single currency. When the equivalency of units of currency was determined, the methods of calculating average prices and selecting representative commodities were instrumental. In the first case, the average price correlation per item was computed for each product category chosen, and in the second case, a specific, fairly representative item manufactured in Japan was chosen and a similar product of American industry was selected as its analog. The statistical material used for the calculations consisted of census data on production volumes in cost and natural terms--that is, data on the value of shipments and data on the quantity of products manufactured in both countries.

It was also borne in mind that the methods used in U.S. and Japanese statistics for calculating the number of employees were approximately the same. For this reason, the results of the author's comparisons of labor productivity levels based on this indicator can be considered quite sound.

3. K. Marx and F. Engels, "Works," vol 23, p 48.
4. Total fixed productive assets per worker.
5. "The National Income and Product Accounts of the United States, 1929-1965," Washington, 1966, pp 158-159; SURVEY OF CURRENT BUSINESS, No 8, 1974, p 21; No 7, 1976, p 63; "Statistical Abstract of the United States" and "Japan Statistical Yearbook," for the corresponding years.



6. Total capital investments in yen were converted to U.S. dollars according to parities calculated by a group of UN statisticians headed by J. Kravis (J. Kravis, "A System of International Comparisons of Growth Product and Purchasing Power," United Nations, 1975, p 176).
7. See K. Marx and F. Engels, Op. cit., vol 23, p 620.
8. "Science and Technology Agency; 1972 White Paper on Science and Technology," Tokyo, 1972, p 229.
9. "Osobennosti protsessa nakipleniya v razvitykh kapitalisticheskikh stranakh" [Distinctive Features of the Accumulation Process in the Developed Capitalist Countries], Moscow, 1978, p 127.
10. BIKI, 1972, app No 9, pp 138, 149.
11. K. Marx and F. Engels, Op. cit., vol 46, pt II, p 221.
12. V. I. Lenin, Op. cit., vol 1, p 95.

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## MINERAL RESOURCES AND STATE REGULATION

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 44-55

[Article by B. P. Sitnikov]

[Text] The raw material and energy crises of the 1970's pointed up the need for stronger government regulation of the mineral and raw material sector of the U.S. economy and made it necessary for ruling circles in this nation to gain control over some means of making and implementing goal-oriented policy in this field. Whereas the private sector once had almost unlimited authority with respect to the prospecting and mining of minerals, as well as the use of these resources, which were under minimum control by the government, this practice is now becoming increasingly inconsistent with the interests of American state-monopolistic capitalism as a whole. The present structure of regulations is inadequate under the conditions of increasingly severe economic crisis. Although this will not be a matter of absolute government control over private capital in the mining industry, the tendency toward a stronger regulating role for the state in the mineral and raw material sphere is quite characteristic of the present stage of American economic development.

The means of government influence on the development of this sector are quite varied. For example, in addition to direct legislative regulation of the accessibility of mineral resources, they also include indirect economic levers, such as price control on some types of minerals, "depletion allowances," tax reductions for the development of new deposits and so forth. But the limited length of this article does not allow for a detailed analysis of the entire set of these regulatory means, which differ widely in terms of their character and purpose. For this reason, the author felt that it would be expedient to concentrate on the particular tendencies that were characteristic of the origination and development of the permanent mechanism governing government supervision and control over the working and use of American mineral resources, with the aid of which, the author believes, both long-term and short-term government regulation will be accomplished in the mineral and raw material sector of the U.S. national economy. In view of the fact that the basic components of this mechanism have only recently come into being and have not assumed their final form, the illustration and more complete disclosure of the logic of their further development calls for the examination of these "basic" tendencies against a broad historical background.

## From Squatting to Leasing

One of the most important links of state regulation of the development of U.S. mineral resources was the judicial regulation of the accessibility of mineral resources on so-called free, or public domain lands.<sup>1</sup> Its evolution can be conditionally divided into two basic stages: the periods of so-called open (1872-1920) and limited (1920-1970) access. When the raw material crisis began to take hold in the capitalist countries in the 1970's, U.S. mineral and raw material policy displayed the signs of a new and more highly developed stage of government regulation of national mineral resources, which is attested to by the very logic of the historical development of legislation on mining, reflecting the growth of productive forces in the American society.

The Constitution of 1788 invested Congress with the right to "control and enact the necessary laws with respect to territory and other property belonging to the United States." For a number of reasons, however, Congress only used these powers in isolated cases involving mineral resources on public domain lands until the middle of the 19th century. The discovery of gold in California in 1848 and the subsequent "gold rush" at a time when there was no permanent nationwide legislation on mining created serious difficulties in the government "control" of mineral resources on public domain lands, which was, according to the Constitution, one of the functions of Congress.

Although Congress began to consider this matter in 1850, 16 years went by before the first law on mining was passed in the United States. While the bill was making its way through Congress, however, the colonists "jumped the gun" and began to personally assert squatter's rights over deposits found on public domain lands. This was not in any way a contradiction of the "rapid development philosophy" prevailing in Congress at that time in regard to public domain lands, which was most fully developed in 1862 when the famous Homestead Act was passed (this act, as we know, allowed the colonists to acquire plots with an area of 160 acres on public domain lands for a nominal sum).

Congress took a similar approach to the use of mineral resources on public domain lands. For example, a law of 1866 on mineral lodes stated that "publicly owned lands containing mineral resources...are declared free and open for exploitation and consumption."<sup>2</sup> For a nominal sum, lodes of gold, silver, cinnabar and copper could be privately owned. Legally, this was accomplished through the issuance of a patent to a plot of land containing minerals. A mining act of 1870 extended the patent system to other types of deposits. In view of the fact that the lands were frequently being used for other purposes, in 1872 Congress combined and modified its two previous laws by passing the General Mining Act. This law is still in force. It has preserved the principle of open access to mineral resources on public lands. Essentially, the modification consisted in the fact that the applicant staking a mining claim had to submit proof of his discovery of the deposit to the federal government.

The General Mining Act of 1872 created the first so-called open system of access to mineral resources on public lands for private individuals. It was distinguished by minimum government regulation, which was only needed for the standardization of mining regulations and the prevention of private land monopolies. At the same time, this act established a legal basis for the rapid development of mining in accordance with the methods of private capitalism. Under the influence of this law, mineral resources on public lands rapidly became private property. For example, between 1882 and 1913, the number of patents issued for minerals exceeded 1,000 each year. The highest number (3,242) was issued in 1892. In all, around 64,000 patents, covering an area of approximately 1.2 million hectares, were issued after 1872.<sup>3</sup>

The Mining Act of 1872 was a product of its time and represented legal recognition of existing reality at a time when the existence of huge open areas in the West and weak government control over them led to the arbitrary occupation of these lands, or to the so-called system of squatter's rights. There is no question that this was quite instrumental in the economic development of the American West and the establishment of a mineral and raw material basis for industry. But it did not stimulate the efficient mining of mineral resources and reflected an attitude toward the land as a commodity which could be used for profit and then discarded. The predatory principle was also present in the logging operations of that time--"cut out and get out"--when the colonists depleted the forests in the lake states and then moved westward.

By the end of the 19th century, however, much of the available land had already been settled and the industrial revolution had been accomplished. The significantly more powerful productive forces of American society and the much greater scales of the domestic market entered into conflict with existing relations in such forms of land use as mining. The patent system was not satisfying the growing demand for some major types of mineral raw materials. The need arose for better--from the capitalist standpoint--land regulations with freer adaptation to the market and the easier mobilization of the land as an economic object. The leasing system answered these needs. As V. I. Lenin wrote, "leasing is a more flexible form in which the adaptation of land use to the market can take place most simply, easily and quickly."<sup>4</sup>

The material prerequisites for the transfer to the leasing system were established by the so-called conservationist movement in public and government circles in America, which arose in response to the danger of the private monopolization of natural resources and the extensive scales of their squandering and which had become quite strong by the beginning of the 20th century. Under the influence of this movement, President T. Roosevelt denied access to around 27 million hectares of land, including industrial coal deposits, at the beginning of this century. In 1908 he sanctioned the founding of the National Conservation Commission to advise the President on the state of natural resources. In line with its proposals, for example, around 2 million hectares of phosphate-rich lands were declared inaccessible in 1908, and more than 1.2 million hectares of oil and gas regions were confiscated in 1909.<sup>5</sup>

Later, Congress passed a series of laws, in accordance with which certain types of minerals on agricultural lands which had been sold to private individuals from the public domain were either completely or partially reserved for the government. This was the first step in the institution of a leasing system for some types of minerals.

Officially, the leasing system was instituted by the Mineral Leasing Act of 1920. It stipulated the basic guidelines for the leasing of deposits, which are still in effect today. According to these guidelines, certain types of minerals were no longer covered by the Mining Act of 1872 because their prospecting and exploitation were subject to broader federal regulation and control. For example, prospecting could no longer be instituted without the acquisition of the appropriate license from the federal government, giving the individual the exclusive right to prospect certain minerals subject to leasing within the bounds of a specific region. If the owner of the license discovered an industrial deposit of the minerals subject to leasing within the time limits set for him, he was granted priority in leasing the deposit. Leasing fees were to be paid after the issuance of a prospecting license and after the signing of the leasing agreement, and royalties (payment for the exploitation of minerals) were only collected on the mining output.

The minerals originally covered by the Mineral Leasing Act of 1920 were coal, phosphate, soda, petroleum, oil-bearing shale and natural gas. As a result of various later changes in this law, the leasing system gradually extended to other minerals as well. For example, in 1926 it was applied to sulphur in Louisiana, in 1927 and 1932 it extended to potassium and sulphur in New Mexico, and in 1960 it was applied to natural asphalt and bitumen.

In this way, a second system was established to create access to minerals on federal lands, in accordance with which the government retained full ownership of deposits of some major types of mineral resources and the right to permit their prospecting and exploitation on certain conditions and for a certain fee.

The further development of the two systems of access to mineral resources--the patent and leasing systems--put emphasis on the latter. This process accelerated noticeably in the postwar period. For example, the 1947 Mineral Leasing Act for Acquired Lands extended the leasing system to so-called acquired lands.<sup>6</sup> The Outer Continental Shelf Lands Act of 1953 established the jurisdiction of the federal government over the ocean floor beyond the maritime boundaries of the states and authorized the secretary of the interior to manage the offshore minerals leasing program. In 1975 the U.S. Supreme Court established the federal government's sovereign right to offshore minerals beyond the 3-mile zone off the coast of the 13 states bordering on the Atlantic Ocean. This paved the way for the development of the leasing system in this region. It should be noted that the House of Representatives passed a bill on deep seabed mineral resources in the middle of 1978, which will regulate the activities of American mining companies within the United States' 200-mile economic zone.<sup>7</sup> If this bill is passed



by Congress, the government will have the power to regulate the activities of the private sector in the working of a "mineral storehouse" so rich that it would be difficult to overestimate its potential value.

The growing severity of the raw material crisis in the capitalist countries in the 1970's revealed sharp conflicts in the sphere of the production and consumption of mineral raw materials in the United States as a result of many factors, including the important factor of the government's ineffective mineral policy. Suffice it to say that the United States was only self-sufficient in 7 metals and 7 non-metals of the 91 minerals now being extracted from the earth. Under the conditions of mineral depletion and the mounting international value of mineral resources, the American economy was faced with the urgent problem of expanding the national mineral and raw material base and increasing the efficiency of mining. Existing legislation in this field was conflicting more and more with the needs of state-monopolistic capitalism and impeding the augmentation of the government's role in the raw material sphere, particularly its control over the prospecting and working of mineral resources. Director J. Alderson of the Wildlife Society said in Congress that "the mining act has become a 19th-century relic, but in contrast to the majority of historical relics it is nothing to be proud of. It is shameful stain on our national policy of land conservation. According to this law, each year more and more public land becomes the private property of mine owners, and each year the land is needlessly scarred. The problems arising from the 1872 law are numerous and contradictory because its basic premises are not totally consistent with our present attitude toward the land or with other land laws."<sup>8</sup>

Congressional hearings on these matters have been going on since 1973 as a result of the dramatic exacerbation of the raw material problem and the growing dissatisfaction with federal policy in the mineral and raw material sphere. Bills currently being considered propose, in particular, that all existing laws on mining be repealed and that a single status be established for government jurisdiction over minerals in accordance with the leasing system within the framework of one law. The declared purpose of the new legislation is "the creation of a single system for the exploitation of mineral resources and the stimulation of their exploitation so as to guarantee society a good return, reduce environmental hazards to a minimum and give the government greater control over the working of minerals."<sup>9</sup>

This proposal is supported by President J. Carter because it gives the administration more authority in matters pertaining to the regulation of the mining process. For example, the secretary of the interior could grant the right to work a new deposit to a different mining company from the one which discovered the deposit, include various environmental protection conditions in the leasing agreement, regulate the mining process and so forth. Despite the fact that Congress rejected this proposal in 1978 as something "too extreme," the question of passing new mining legislation is still among the priority problems earmarked for discussion by the 96th Congress.<sup>10</sup>

The question of the improvement of legal regulation of access to mineral resources is still in the discussion stage. An analysis of the historical development of this regulation, however, ascertains that the government has displayed a noticeable tendency to gain more extensive control over the working of mineral resources, to coordinate this type of economic activity with other forms of land use and to eventually increase the efficiency of mining by means of stronger regulatory measures.

#### Origins of the System for Calculating and Assessing Mineral Resources

The increased tendency toward federal control over mineral resources in the United States has been accompanied by the development of the system for their assessment and calculation. The exacerbation of the raw material problem in this nation is necessitating more thorough investigation of the national mineral and raw material base, the institution of more efficient methods of exploitation, the consideration of economic aspects of environmental protection and the more effective use of poor deposits which have been regarded as economically unprofitable up to the present time.

Prior to World War II, the investigation of U.S. mineral resources was a spontaneous and episodic process, essentially limited to problems in soil conservation. This was the reason, for example, for the fact that the U.S. Geological Survey did not have complete and reliable data on the location of mineral deposits in the nation for the geological mapping of the entire territory, just as it did not have a single set of methods for the investigation of mineral resources, a system for coordinating the extraction of rock samples and so forth.

One of the first major American works on the raw material problem was "American Needs and Resources," a monograph by F. Dewhurst, published in 1947. It served as the basis for the next stage in the development of research on the raw material problem in the United States--the report of the President's Materials Policy Commission (Paley Commission), published in 1952 with the pretentious title "Resources for Freedom." The commission attempted to calculate the probable shortage of natural materials over the next 25 years and concluded that, without precise knowledge of the existence of raw material resources in the nation, "there is only one possible solution to the increasingly urgent materials problem, namely a more flexible position in regard to the extraction of raw materials."<sup>11</sup> To provide the economy with sufficient supplies of raw materials, it proposed action on three fronts--increased production from national sources by means of the elimination of various technological, physical and economic barriers; modification of consumption standards by substituting more abundant materials for the scarce ones; increased imports of raw materials on terms convenient for the United States. Due to the conditions of that time, only the last proposal was implemented, in the form of a program for overseas purchases of raw materials and the creation of strategic reserves.

The findings of a Senate raw materials commission (the Mellon Commission), published in 1954, did not corroborate many of the Paley Commission's estimates. However, without renouncing the policy of foreign expansion, the need

for which was proved by the Mellon Commission, it proposed a simultaneous increase in the exploitation of mineral resources within the United States. This was in the interests of the American monopolies engaged in the extraction of minerals within the nation.

The conclusions of a fundamental study entitled "Resources in America's Future" considerably changed the idea of U.S. supplies of mineral raw materials. The authors of this book expressed the view that the concept of "depletion" on the nationwide or worldwide scale was extremely relative in nature. They proposed the improvement of technology for the use of ore with a lower metal content, a lower lodging depth and "other shortcomings."<sup>12</sup>

As we can see the conclusions of these episodically conducted studies were extremely contradictory. They could not serve as a reliable basis for policy-making in the mineral and raw materials sphere. This would require a system of continuous calculation and assessment of mineral reserves and their comparison to national demands. This is confirmed, in particular, by the conclusions of a study on the engineering of a new minerals policy, conducted by the National Minerals Advisory Board in 1972 at the request of the Office of Minerals Policy Development. These findings indicated that the maximum use of local mineral resources would "necessitate the creation of the proper information base, involving the complete geological mapping of the United States, the study of the origins and locations of mineral deposits, the calculation of possible concealed ore deposits and the establishment of a central data bank."<sup>13</sup>

One of the first steps in this direction could be considered the program set forth in 1974 by the Bureau of Mines<sup>14</sup> for the systematic recording, assessment and classification of reserves of national and foreign mineral resources (Minerals Availability System, MAS) with consideration for the prospects for development in the technology of mining and economic expediency. This system represents a procedure of continuous control over existing and potential sources of minerals, ensuring shipments to the United States, and their assessment in terms of various parameters, such as capital and labor requirements for the exploitation of deposits, the quality of minerals, formation value factors, shipping costs, development level of infrastructures, ecological expenditures, technological efficiency, legal mining regulations, various political factors and so forth.

The MAS is now used to estimate existing and potential national and foreign reserves<sup>15</sup> of 34 types of minerals and derived metals; to determine their shipping costs for industrial consumers in the United States; to process accumulated information for its inclusion in a computer memory bank, which provides for the rapid analysis of the United States' present and potential ability to produce or acquire necessary quantities of materials.

The procedure for the continuous supervision, assessment and analysis of each source of mineral supplies in the United States is divided into five stages: technical assessment of the deposit; economic analysis for the classification of deposits as "reserves" or "potential resources"; estimation of changes in

the composition of reserves; determination of the most convenient sources of supplies; choice of supply systems.

Priorities in the choice of minerals for the control system were assigned according to the recommendations of the Council on International Economic Policy. The priorities were set in the following pattern, depending on the significance of each mineral for the U.S. economy:<sup>16</sup>

Table 1

1. Aluminum	13. Lead	25. Tantalum
2. Chromium	14. Fluorine	26. Uranium
3. Tin	15. Niobium	27. Thorium
4. Cobalt	16. Mercury	28. Zirconium
5. Platinum	17. Tungsten	29. Beryllium
6. Manganese	18. Vanadium	30. Barium
7. Copper	19. Potash	31. Lithium
8. Nickel	20. Asbestos	32. Rare-earth elements
9. Zinc	21. Gold	33. Sulphur
10. Iron	22. Silver	34. Magnesium
11. Phosphate	23. Antimony	35. Derived metals
12. Titanium	24. Molybdenum	

Plans for the future envisage the inclusion of all non-energy types of minerals in the system for the control and calculation of mineral resources, the considerable expansion of the volume of detailed information on the existence of mineral resources and the effectiveness of their exploitation as a basis for conservation policy planning, the coordination of mining with other types of land use and the regulation of fundamental research in the mineral and raw materials sphere.

#### Scientific Research: The Search for a Coordination Mechanism

As was mentioned above, the rising cost of exploiting mineral resources due to their depletion and the dramatic rise in the prices of minerals in the 1970's under the conditions of American industry's underutilization of its own mineral and raw material base and its reliance on cheap import sources have made it necessary and expedient to reorganize production and consumption patterns with more emphasis on U.S. natural resources and less waste in consumption. The modification of consumption standards, however, will depend largely on scientific research and development, the final result of which will be the discovery of new and more economical sources of raw materials, new types of materials and new spheres of application. This, in turn, is necessitating stronger centralized government regulation of research studies conducted by various federal agencies in the materials sphere. The tendency toward the centralization and concentration of these studies began fairly long ago, but it fluctuated depending on the situation in the world mineral market.



A quarter of a century ago, the Materials Policy Commission (the so-called Paley Commission) set up by President Truman announced for the first time on the governmental level that the problem of the depletion of natural resources could already be overcome with the level of technical development that had been reached by that time, but only at an extremely high cost, and that the role of scientific research in the resolution of this problem would become increasingly important as the prices of materials rose.

The commission outlined the following ways of solving this problem: the improvement of the technology for prospecting raw material resources and their utilization; the development and institution of closed technological cycles and a technology for the exploitation of poor deposits; the increased use of more economically, regenerative resources and the use of more abundant types of materials. This program required the centralized management of research and development projects conducted by various government agencies in the materials sphere. When the commission began to investigate the possibility of financing and coordinating these projects on the national level, however, it was learned that there was not a single federal agency capable of taking on these functions. Moreover, there was no reliable statistical information about research and development in this field.

The studies of raw material problems which followed the report of the Paley Commission (1952) contain the common conclusion that an integrated system was needed for recording and overseeing research and development in the raw materials sphere and coordinating a broad spectrum of projects transcending the limited interests and powers of individual agencies. For a long time, however, the matter went no further than declarations.

The degree of interest in this idea on the part of government agencies fluctuated depending on the situation in the world materials market and the priority assigned to raw materials in American Government policy. For example, World War II and postwar reconstruction gave rise to a tremendous demand for raw materials throughout the world, as a result of which--at a time of general depletion in known raw material deposits--world prices tripled between 1938 and 1948, while the prices of finished items slightly more than doubled. There was a shortage in some important types of industrial materials. This motivated the U.S. Government to study national reserves of strategic materials and create the abovementioned commission for this purpose; for the first time, this elevated the need for government regulation of scientific research in the raw materials sphere to the status of a national objective.

The discovery of rich deposits of raw materials in the colonial and semi-colonial countries in the early 1950's and their predatory exploitation by international monopolies, most of them American, resulted in a relative decline in the cost of materials. A new source of cheap raw materials for U.S. industry had been found, and the raw material problem, along with the idea of government regulation of research in this field, temporarily disappeared from the list of federal policy priorities.



In the beginning of the 1960's, a broad struggle was launched by the people of the Asian, African and Latin American countries for political and economic independence and against the theft of their natural resources. By this time, American industry was already relying mainly on the cheap "colonial raw materials." For example, whereas the United States was primarily an exporter of raw materials until the end of 1963, in 1964 the cost of its imports exceeded the cost of its exports for the first time in many decades, and since that time this difference has constantly increased.

These two tendencies--the growing political "unreliability" of possibilities for the exploitation of foreign sources of raw materials and the reliance of the American economy on these sources--again, just as in the beginning of the 1950's, aroused in government circles a sense of the "vulnerability" of the United States in the event of interruptions or stoppages of foreign shipments of raw materials. They again turned their attention to the raw material problem and, in connection with this, the idea of government regulation of research in this sphere was reconsidered and experiments with its implementation were even instituted.

In 1964 the first statistical data were published on research and development in the raw materials sphere.

They were cited in a report of the Coordinating Committee for Materials Research, created in 1963 as part of the Federal Council for Science and Technology for the purpose of answering several questions, including the following--Where were the federal funds allocated for materials research and development being spent? Who was spending them? Were there gaps or "overlaps" in the materials research and development program of separate federal agencies? Would it be possible to convene a forum of representatives of the agencies to discuss the most important raw material problems? The members of the committee represented such federal agencies as the Atomic Energy Commission, the Department of Defense, the National Aeronautics and Space Administration, the National Bureau of Standards, the Bureau of Mines and others.

During the process of this work, the committee compiled reports, only one of which, pertaining to expenditures on research in the materials sphere, was published (data from this report are presented in Table 2).

The second report examined existing materials problems and the possibilities of their resolution. In the third, an attempt was made to elaborate a "connecting mechanism" to integrate possible ways of solving raw material problems and establish the responsibilities of agencies capable of working these solutions.

In spite of the relatively short life of the committee (6 years), it brought about the positive result of proving the need for the supervision and coordination of materials research by a single federally financed agency. As a result, in January 1970 the Interdepartmental Materials Council was founded as part of the National Academy of Sciences. This interdepartmental agency,

however, did not accomplish even one of the tasks that had been set, because it existed for an even shorter time than its predecessor--the Coordinating Committee for Materials Research. In 1973, just before the dramatic exacerbation of the raw material problem in the world, which was given the name of the "raw material crisis," the council ceased its activities.

Table 2

Estimates of Total Federal Expenditures on Materials Research and Development, in Millions of Dollars

	Coordinating Committee for Materials Research <sup>a</sup>			Interdepartmental Materials Council <sup>**</sup>			SSIE <sup>***</sup>	Federal Council for Science and Technology <sup>****</sup>
	1962	1963	1964	1967	1969	1971	1974	1976
In current dollars	184.8	214.8	220.5	242.1	264.8	254.9	330.6	470.0
In constant dollars (1967=100)	194.9	226.2	232.8	242.1	248.6	223.8	206.5	-
% of total re- search expendi- tures (National Science Foundation)	1.8	1.8	1.5	1.4	1.6	1.7	1.8	2.2

\* "Survey of Federal Directly Supported Research and Development," May 1964, p 5.

\*\* "Funding Survey of Federal Directly Supported Materials R&D," August 1971, Table 1, p 1.

\*\*\* Smithsonian Science Information Exchange.

\*\*\*\* "Federal Council for Science and Technology. Report on the Federal R&D Programs. FY 1976," p 124.

By the mid-1970's, the prices of raw materials in the world market had risen dramatically. Between 1971 and 1974 the average annual rate of rise in export prices of raw materials was 28.5 percent, while the rate for finished items was only 12.3 percent, and the quickest rise was seen in the prices of minerals, particularly energy sources.

Under the conditions of the American economy's pronounced dependence on imports of minerals to the United States, the situation warned against by the Paley Commission a quarter-century ago took shape: The rise in mineral prices enhanced the value of scientific research as a means of changing consumption standards for the resolution of the raw material problem.

In 1975, an Interdepartmental Materials Committee was created as part of the Federal Council for Science and Technology. Its members represented 15 federal agencies. Although the committee's goals were similar to the goals of its predecessor--the Interdepartmental Council--this new body took a different approach to the resolution of the problems set for it. This

committee made the first attempt to examine the raw material problem as a result of the functioning and evolution of the closed materials system: prospecting--mining--processing--utilization--recovery of waste products--utilization of waste products.

This approach attests to a qualitatively new understanding of the essence of the materials problem. It has now acquired, as it were, two time dimensions--short-range and long-range--and increasing significance is being attached to long-range goals, problems and solutions. Whereas prior to the "raw material crisis" the activities of the federal government in the materials sphere were defined primarily in terms of short-range goals--that is, the attempt to minimize the influence of temporary upheavals in the American economy (such as a sudden rise in prices or change in supply sources, as reflected in government actions aimed at the conservation of material reserves and the creation of strategic stocks), greater emphasis is now being placed on ensuring the reliability of shipments and reducing prices to minimum level.

Therefore, the importance of the raw material problem was not only evaluated as such, but qualitatively new solutions were also outlined.

First of all, it was necessary to choose optimal solutions for long-range raw material problems. This required the synchronized assessment of research and development advantages and expenditures by a permanent institution, which would then judge the priority of various research and development projects.

American experts believe that the most convenient type of informational system on materials research is the type represented by the Smithsonian Science Information Exchange--a non-profit corporation controlled and financed by the Smithsonian Institute.

The forms used for the collection of information by the exchange are in the nature of statistical reports. Each agency entering into this science information exchange system fills out a form for each completed or contracted project and sends it to the center. The form contains the following information: the name of the financing agency, the name of the project, the code number of the research organization, the code number of the agency, the address and name of the executor organization, the cost of the project and a brief description of the project. When these reports are received by the exchange, the information is stored in a computer memory bank. The exchange collects, synthesizes, "packages" and distributes information on federal and private research and keeps a constant record of the who, where, when, and why of projects.

There is no question that the creation of a similar system for the collection and exchange of information on raw material research could be of considerable assistance in the implementation of the idea of centralized management of this kind of research.

The synthesis of all of the tendencies described above provides the following picture of the development of the process by which the state is gaining control over the necessary material prerequisites for its more pronounced intervention in the mineral and raw materials sphere for the purpose of guaranteeing long-range structural advances in this sphere and enhancing the effectiveness of the American economy as a whole. By extending the leasing system to various types of mining, the state is providing itself with a mechanism for regulating the exploitation of mineral resources, which will allow for more flexible adaptation to the market by stimulating or decelerating the mining of various minerals, coordinating the mining process with other forms of land use and enhancing its effectiveness in the general economic sense. For the goal-oriented functioning of this mechanism, improvements are being made in the system for the calculation and assessment of mineral resources, which assigns priority in federal materials policy for the more efficient exploitation of the national mineral and raw material base. The improvement of the mechanism for enhancing the effectiveness of mineral production is being accompanied by a search for a better mechanism for coordinating the research projects of various federal agencies in the raw materials sphere, aimed at enhancing the effectiveness of the consumption as well as the production of mineral resources. This kind of mechanism would give the government more goal-oriented and concentrated influence on the present standards of mineral consumption in the United States.

We must repeat, however, that these new phenomena exist in immature form, they have only begun to exist and have not reached the stage of fruition. The onset of a higher stage of state-monopolistic regulation in the mineral and raw material field, however, is inevitable. On the other hand, total government control over the mineral and raw materials sphere, just as over the economy as a whole, is unattainable under the conditions of the capitalist production relations prevailing in the United States.

#### FOOTNOTES

1. The "public domain lands" first took in almost all of the territory added on to the United States during the period following the founding of the nation. The territory of the 13 original colonies was never part of the public domain because almost all of the land in these colonies was privately owned by the time of the nation's founding--that is, by 1778-1796 (these were the states of Massachusetts, New Hampshire, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Delaware, Virginia, Maryland, North Carolina, South Carolina and Georgia). According to the present American interpretation, public domain lands consist of U.S. territory which was acquired by means of concessions or through political channels and which was never transferred (or sold) to a private owner or occupied as a reservation.
2. "Current Mineral Laws of the United States," Washington, 1975, p 1.
3. Ibid., p 2; "Mineral Development on Federal Lands," Hearings Before the Subcommittee on Minerals, Materials and Fuels of the Committee on Interior and Insular Affairs, U.S. Senate, 93d Congress, Washington, 1974, p 164.

4. V. I. Lenin, "Poln. sobr. soch." [Complete Collected Works], vol 21, pp 382-383.
5. "Current Mineral Laws of the United States," p 3.
6. According to the American system of classification, acquired lands are those which were once privately owned but were subsequently acquired by federal agencies.
7. MINING ENGINEERING, December 1978, p 126.
8. "Mineral Development of Federal Lands," p 233.
9. Ibid., p 164.
10. MINING JOURNAL, 8 September 1978, p 169.
11. "Resources for Freedom," The President's Material Policy Commission (Paley Commission), vol 5, Washington, 1952, p 819.
12. H. H. Landsberg, L. L. Fishman and J. L. Fisher, "Resources for America's Future," vol I, Moscow, 1965, p 2.
13. "Federal Materials Policy. Part 1. Recommendations for Action, 1952-1976," Washington, 1976, p 43.
14. The Bureau of Mines of the U.S. Department of the Interior was founded in 1910. It investigates possibilities for the improvement of exploitation conditions and the augmentation of mine productivity.
15. The terms "resources" and "reserves" are defined in the following way. Reserves are stores of minerals which can be worked under present technical and economic conditions. Resources represent a broader category, including potential stores, which will become accessible for working either when there is a high level of demand or when significant advances are made in the technology of mining, enriching and smelting, allowing for a sharp decrease in production costs. The MAS system presupposes the constant study of factors keeping potential resources from becoming reserves.
16. MINING ENGINEER, September 1977, p 43.

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## RESULTS AND PROSPECTS OF OCEANOGRAPHIC COOPERATION

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[Article by V. D. Piskarev]

[Text] In February 1979, the Fourth Session of the Soviet-American Joint Commission on Cooperation in World Ocean Studies was held in Moscow.<sup>1</sup> The Soviet delegation was headed by Academician A. V. Sidorenko, vice president of the USSR Academy of Sciences and chairman of the Soviet half of the commission. The U.S. delegation was headed by Richard A. Frank, administrator of the U.S. National Oceanic and Atmospheric Administration and chairman of the American half of the commission.

After commending the results of measures taken during the initial stage of the term of the agreement (1973-1978), the joint commission discussed reports by the Soviet and American co-chairmen of expert task forces set up at the first session of the commission in February 1974. Programs for oceanographic studies for 1979 were also discussed and approved. These cover all of the main areas of cooperation by Soviet and American scientists within the framework of the agreement, which has been extended to 15 December 1981.

Within the context of the first section of the agreement--"Studies of Mass-Scale Interaction by the Ocean and Atmosphere"--several important projects have been carried out in recent years. One of them is the international "Atlantic Tropical Experiment" (ATEP). Soviet and U.S. scientists made an important contribution in exploratory expeditions and in the subsequent processing and theoretical summarization of their findings.

The cooperation has resulted in the publication of several joint scientific works.

An important project within the framework of this section was the program of South Ocean studies,<sup>2</sup> envisaging the investigation of the space and time limits marking the variability and nature of oceanic and atmospheric interaction in the zone of the Antarctic circumpolar current. In 1975 and 1976, scientists from both countries organized several meetings to discuss problems in the coordination of related national scientific programs, draw up plans for joint expeditions and negotiate the exchange of data. In 1976

and 1978 an extensive set of oceanographic studies was completed, including studies on board the Soviet research vessel "Professor Zubov" and the American "Knorr" vessel. The discussion of scientific problems of Antarctic oceanography and the analysis of findings were pursued at symposiums in the USSR and the United States, American seminars on the AISOS project attended by Soviet scientists, and discussions held when American scientists visited the Arctic and Antarctic Institute in Leningrad. Joint studies in the southern ocean have contributed to a much broader understanding of the structure and dynamics of the Antarctic circumpolar current and the polar frontal zone, as well as the nature of their interaction. With the aid of a diagnostic model, the precise structure of Antarctic circulation was determined. Work is now being conducted to model the circulation in this region.

The protocol of the fourth session of the commission envisages programs for the joint study of the Antarctic circumpolar current during the southern polar summers of 1978/79 and 1979/80. American scientists are expected to take part in the expeditions of Soviet research vessels in the region between Africa and Antarctica, and Soviet scientists are to participate in studies on board an American vessel, which will be operating in Drake Strait and the region southeast of New Zealand. An exchange of specialists is also planned in connection with the quantitative modeling of Antarctic circulation.

In line with the second section of the program--"Experimental and Theoretical Study of the Dynamic Processes and Circulation Systems in the World Ocean"--most of the work was conducted within the framework of the POLIMODE program, directed at the study of average oceanic currents and the determination of the causes of interaction by vortices and the main circulation. The program is expected to result in a better understanding of global marine geochemical and biological systems and the methods by which energy is transferred from the ocean to the atmosphere, and improvement in the quality of forecasts of fundamental dynamic processes in the ocean.

The planning of joint projects began in Moscow in 1973 and went on for 3 years. In 1975 and 1976, Soviet research vessels with American scientists on board conducted preparatory expeditions in the Atlantic Ocean, during the course of which the possibility of setting up oceanographic equipment was investigated and gauges for the measurement of currents and salinity were compared. The main experiment was conducted from July 1977 through September 1978 in the western half of the North Atlantic on a testing ground with an area of around 300,000 square kilometers. American specialists took part in studies on board the Soviet research vessels "Bugayev" and "M. Lomonosov," and Soviet scientists were involved in studies on the American vessel "Endeavor." Speakers at the commission session noted the first important scientific results of the POLIMODE program, particularly the discovery of new current patterns at various depths in the research zone, the disclosure of the geographic variability of vortices in this zone and the collection of enough data to begin the quantitative evaluation of the role of vortices in total circulation. Work on the quantitative modeling of mass-scale circulation also continues. In 1976 and 1977 there was an exchange of experts between the two sides: A Soviet scientist spent 3 months at the Princeton Geophysical Laboratory for the Study of Liquid Dynamics, and an American specialist visited several Soviet computer centers. During

During these visits, experiments were conducted on the basis of American data to verify the suitability of the Soviet model for the forecasting of oceanic circulation, a quantitative comparison of mathematical models developed in the USSR and United States was instituted, and problems in large-scale quantitative modeling were discussed. In 1979, when the POLINODE program will enter the stage of data analysis, interpretation and publication, a conference of Soviet and American specialists will be organized for the preliminary summarization of the results of expeditions, and research on quantitative modeling will be continued.

In line with the section on "Geological, Geophysical and Geochemical Study of the Ocean Floor,"<sup>3</sup> the Soviet and U.S. scientists concentrated on the investigation and theoretical interpretation of processes occurring in the platforms of the earth's core, which result in the formation of continental edges, the concentration of rich mineral resources and catastrophic earthquakes. Between 1974 and 1978, Soviet scientists took part in 25 of 28 expeditions on the "Glomar Challenger" drilling vessel in line with the program of the "International Phase of Off-Shore Drilling" (IPOD). On the basis of an analysis of core samples taken from sedimentary strata and deep-sea bedrock, specialists from both countries made an important contribution to the study of the history and development of oceanic basins and their connection with the earth's surface as a whole. A joint research program for 1979 and 1980 envisages off-shore drilling in the North and South Atlantic in sections across the continental edge from the shelf to the abyssal trench. During the course of these expeditions, detailed paleo-oceanographic studies will be conducted, and the zones of organic sedimentation and passive oceanic regions will also be investigated.

In 1975 and 1976, Soviet and American scientists conducted a considerable amount of research work on vessels of both countries in line with the program for the study of platform dynamics in the northwestern Pacific. These studies, including the determination of the position and nature of seismic zones located on the ocean floor, will provide a better understanding of the geodynamics of active oceanic regions and the history of the development and deformation of core platforms, and will also serve as an important supplement to the IPOD program. At a seminar in Moscow in 1977, Soviet and American scientists suggested geological and geophysical studies in the northwestern Pacific in 1980-1985, which could include the joint compilation of a series of geophysical maps, the completion of sea and land routes along the Aleutian island chain and the Sea of Okhotsk, and the organization of several seminars and symposiums. In February 1978 at a symposium in Honolulu, specialists from both countries discussed future plans for work on the "Geodynamic Experiment in the Northwestern Pacific" and the experimental "Comparison of Continental and Oceanic Lithospheres and Asthenospheres." Soviet and American scientists presented a number of reports which will be published in the form of research materials for the future planning of joint projects.

"Studies of the Biological Productivity of the World Ocean and Research Into the Biochemistry of the Functioning of Individual Organisms and Biological Association in a Marine Environment"--is one of the most important sections

of the agreement. More than 30 Soviet and American scientific centers are participating in carrying out a long-range program of research in this field. In past years, 9 joint expeditions and 10 seminars and symposiums were held, in which around 250 scientists took part. In 1976-1978, American scientists participated, for example, in studies of the primary productivity and biological communities in the South Pacific on board the Soviet research vessel "D. Mendeleev." American scientists also participated in an expedition on the Soviet research vessel "Frit'of Nansen" in the Barents Sea, where the highest levels of primary productivity were discovered. During these years, Soviet scientists attended seminars in the United States on the ecology of marine growths (Beaufort, 1975) and on the physiological and biochemical aspects of the adaptation of marine life (Georgetown, 1977). Symposiums were held in the Soviet Union on problems of marine botanics (Leningrad, 1975), the sexual cycles of fish and their hormonal regulation (Leningrad, 1976), the ecology of marine biocenosis (Leningrad, 1976) and the modeling of ecosystems (Tallin, 1978).

This year, scientists from both countries will continue their work on this section of the program in the following basic areas: bioproductive systems of the North Atlantic; the ecology of predators; population levels of marine organisms and the effect of pathological changes on population; biologically active substances in the ocean; the biology of marine growths. The operational program also envisages a conference on the classification of fish in cold and moderate waters and symposiums on the methodology of population assessment, the bioproductivity of deep-sea regions of upheaval and the physiological and biochemical characteristics of marine life.

Cooperation by Soviet and American scientists on the section on "Intercalibration and Standardization of Oceanographic Equipment and Ocean Research Methods" developed in two main fields. The first was the mutual comparison of scientific equipment and gauges used in the POLIMODE program and in southern ocean studies. The second was the elaboration of standards for oceanographic scientific equipment used for reference purposes and the evaluation of testing units for intercalibration and standardization. At a meeting of the operational group in May 1975 in Washington, programs for drawing up for the intercalibration of Soviet and American temperature, salinity and current velocity gauges for a period of 2 years. In May 1975, a Soviet platinum standard temperature gauge was adjusted on an American testing unit. The exchange of primary and secondary marine water standards was completed before June 1978, and comparative measurements, demonstrating excellent correlation, were taken. Information was exchanged on flow gauges and their test units. Plans for 1979 call for the exchange and laboratory comparison of salinity and flow velocity gauges, as well as the preparation of reports on Soviet and American sea water and temperature standards.

On 21 February the protocol of the Fourth Session of the Soviet-American Joint Commission was signed; it reaffirmed the fact that Soviet-U.S. cooperation in the field of world ocean studies will be based on equality and mutual benefit. Academician A. V. Sidorenko, chairman of the Soviet half of the joint commission, and Richard E. Frank, administrator of the National Oceanic and Atmospheric Administration, made statements at the session, noting the

great scientific and practical value of Soviet-American studies, the results of which will serve as a sizable contribution to the study and intelligent use of the world ocean for the good of both countries and all mankind.

#### FOOTNOTES

1. See the article by V. D. Pisarev, "Soviet-American Cooperation in the Area of World Ocean Studies," in issue No 10 for 1974--Editor's note.
2. In the title of this program, the term "South Ocean" is used to signify the waters around Antarctica.
3. At its second session, the joint commission decided it would be inexpedient to designate geochemical and hydrochemical studies of the world ocean as a separate section of the agreement and proposed that geochemical studies be conducted by the task force on geology and geophysics, and the study of hydrochemical processes be studied by the task force on ocean currents and dynamics.

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CSO: 1803



## COLLAPSE OF CENTO

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 60-64

[Article by A. D. Portnyagin]

[Text] When Iran, Pakistan and Turkey broke away from the military and political CENTO bloc, into which they had been drawn by the United States and Great Britain, they signed the death warrant of the 25-year-old organization. The events that took place in CENTO's zone of action at the end of 1978 and the beginning of 1979 proved once again that the people of the liberated states have long desired to conduct an independent foreign policy and that their national interests are incompatible with the goals of the organizers of imperialist blocs.

The Baghdad Pact, which was named the CENTO bloc after Iraq withdrew from it in 1958, was born at the height of the cold war. According to the plans of its inspirers, one of whom was zealous apologist of anticommunism and preacher of the ideas of the "Pax Americana" J. F. Dulles, and the more reactionary American groups backing them up, CENTO was supposed to become almost an exact copy and extension of the aggressive NATO bloc in Asia for struggle against the national liberation movement in this region, stretching from the Mediterranean to the banks of the Indian Ocean, and against the USSR and other socialist countries. As VIEWPOINT, the Pakistani weekly, reported in March 1979, its main objectives "were to maintain neocolonial control over the natural resources of countries in this region, particularly Arab oil, and to break up the unity of the Arab states."

In spite of the fact that the United States was regarded only as an "associated" member of CENTO, its participation was always much broader and more noticeable than that of England, which was the formal founder of this military and political organization. After the elimination of the English presence in the Persian Gulf, the United States became CENTO's only basis of support. "We are observers," said President P. Hart of the Middle East Institute in Washington, analyzing the role and place of the United States in CENTO, "but we are acting at all times like full-fledged members, and we are investing more capital in this bloc than anyone else."

Despite the constant efforts made by ruling circles in the United States and England to convey the impression that the bloc was supposed to promote peace and stability in the region, its regional members arrived at the unanimous conclusion that CENTO was a tool of the Western countries and always defended only their interests. Whereas TIME magazine, in an attempt to somehow muffle the sound of the bloc disintegration, only remarked in the fall of 1978 that "the organization has been seized by profound silent discontent with American policy," the Pakistani Government was already declaring that CENTO was "an agreement on paper, having no value whatsoever."

For many years, Pakistan, Turkey and Iran expressed profound dissatisfaction with U.S. policy, sometimes for different reasons, and this attested to the deep and fundamental differences of opinion that always existed between the regular members of the bloc and its Western participants, who were playing first fiddle. Pakistan, in particular, began to play a passive role in 1965, when CENTO refused to support it in its dispute with India over Kashmir. In the 1970's, after the Indian-Pakistani conflict, it tried to conduct a more independent foreign policy by instituting constructive steps in conjunction with India to normalize the political situation in South Asia. Serious indignation was aroused by Washington's actions when it took advantage of its dominant position in the bloc to openly intervene in the internal affairs of Pakistan. The White House's attempts to exert political pressure on the Pakistani leaders after they condemned American policy in Vietnam and expressed support for the just struggle of the Arab people against Israel, were interpreted by the Pakistanis as a "classic example of intervention for the purpose of destabilizing" the situation in the country.

During consultations between Iran and Pakistan in March of this year, the two countries expressed identical views "regarding CENTO's inability to serve the interests of peace and security in the region." This gave both states grounds to announce their withdrawal from the bloc. The break with CENTO has made it possible for Pakistan to join the nonaligned states, and this, in the opinion of observers, will give it a chance to relieve itself of the heavy burden it carried as a member of this aggressive bloc and will simplify the settlement of disputes with Afghanistan and India.

As for Turkey, a broad-based movement for eliminating the presence of American troops and Pentagon military bases located on Turkish territory has existed in this country for a long time. By the mid-1960's, or just 10 years after the bloc was formed, the Turkish Government tried to conduct a foreign policy more independent of the United States by refusing, in particular, to send troops to Vietnam. This tendency became even more pronounced in the 1970's. In 1978 the Turkish Government expressed the wish to join the movement for nonalignment, in the capacity of a "guest" for the time being. Observers noted a change in Turkey's position on CENTO, as membership in this bloc kept it from adhering to a more independent line in relations with other countries.

Membership in the military bloc inflicted tremendous harm on the political and economic development of its Asian members. As a result of the militarization of Iran, which was being used by the West as a policeman in the oil-rich region

of the Persian Gulf, the shah's regime spent almost 20 billion dollars on the acquisition of weapons, the construction of military bases and the modernization of armed forces in its last 6 years. And all of this was done to protect the interests of the imperialist states while the overwhelming majority of the population in this country lacked the minimum means of subsistence.

Pakistan also experienced considerable financial and economic difficulties as a result of the constant rise in military spending, which reached 800 million dollars in the last few years. But no numerical calculations can measure the damages incurred by these countries when they were pressured to act by imperialist circles in the United States and England.

The stormy events of recent months in the collapsed CENTO bloc's zone of influence have forced U.S. ruling circles to search for new means and methods of attaining their foreign policy goals, which are the same today as they were in the past. The White House is actually wondering what steps can be taken to restore some degree of American control in the region. Washington is spreading the old hackneyed rumors about the "Soviet threat" and about the vitally important significance of the Persian Gulf (which borders on the Soviet Union but is located almost directly opposite the United States on the globe) for the functioning of the American economy. This is supposed to justify even military intervention by the United States for the purpose of retaining control over sources of petroleum.

Here it should be noted that all of the American leaders' talk about their alleged loyalty to their allies had one main strategic purpose--guaranteed deliveries of oil from this region. If there were no oil, any alliance with the countries in this region would lose all meaning for Washington, as is apparent from the following statement made by President J. Carter in March of this year: The United States has a "genuine national interest in maintaining stability and peace in this region, particularly because of oil deliveries." And a former assistant secretary of state in the Nixon and Ford administrations who is now president of the American University, J. Cisco, has said that the United States is prepared to take "any action" to obtain oil from the Persian Gulf countries.

This means that until the oil resources of these countries are depleted, the United States has no intention of leaving the region, at least not voluntarily. For this reason, the disintegration of the CENTO bloc gave birth to new strategic plans in Washington in regard to the region in question.

The first reaction of U.S. ruling circles in response to the fall of the shah's regime in Iran and the decision of the bloc's Asian members to withdraw from it was a massive buildup of military potential in the region. A naval operational unit led by the "Constellation" aircraft carrier joined the three naval ships permanently based in the Persian Gulf; later, the Pentagon decided to add the "Midway" aircraft carrier, the "England" cruiser and minesweepers to these forces. At the same time, Washington organized a demonstration of air force strength in Saudi Arabia by sending a squadron

of Phantoms there; at a time when the two Yemens were successfully negotiating the settlement of their disputes, the United States announced its intention to send 300 military advisers and a huge quantity of weapons worth 400 million dollars to North Yemen.

Reactionary circles in the United States demanded that the Washington administration take more decisive action, right up to open aggression. Former head of the CIA and U.S. Ambassador to Iran R. Helms, who was instrumental in reinforcing the repressive Iranian SAVAK secret police, is of the opinion, as TIME reported on 12 March 1979, that a U.S. policy which excludes the element of intervention in the internal affairs of other states, particularly in the Middle East, is "doomed to failure." He advised the White House to move from talk to action.

The progressive changes in the socioeconomic and political life of the people in the states bordering on the Indian Ocean, particularly the Persian Gulf countries, which have weakened the positions of American imperialism in this part of the world, evoked varied reactions in American political and scientific circles in regard to Washington's future military and political strategy in this region, some elements of which can already be discerned. At the basis of this strategy lie long-range plans for the creation of an infrastructure of permanent military presence with the aim of decelerating or completely stopping the development of anti-imperialist tendencies in the Persian Gulf zone.

The complex of planned measures, which could dangerously escalate the arms race and lead to serious complications in the international climate in a restless part of the world, includes the establishment of a permanent fleet modeled on the 6th and 7th American fleets, the formation of special shock groups for interventionist missions, increased deliveries of weapons to the littoral countries, the engineering of new alliances with the aid of reactionary regimes and the use of these alliances against progressive forces fighting for national liberation and the peaceful construction of a new life in their own countries.

The new 5th American fleet, according to preliminary data, will consist of 40-50 ships, which will include, in particular, 2 aircraft carriers, mine-sweepers, assault helicopter carriers, auxiliary vessels and fueling units. If these plans should come to pass, the American taxpayers will have to place another 8 billion dollars on the altar of the military-industrial complex initially and a minimum of 800 million dollars a year for the maintenance of the new fleet. Besides this, large military bases, fuel stations and so forth are needed to serve large naval units. This is increasing the importance of the base on Diego Garcia.

The Pentagon's plans are meeting with support and approval in the more reactionary circles of the American Congress, headed by Senator H. Jackson, apologist for the military-industrial complex, who frankly states that the United States "must have its own fleet in the Persian Gulf, Indian Ocean and Arabian Sea," since American support is an essential condition for the organization of punitive campaigns against public demonstrations in the littoral countries.



The new American plans are also connected with the signing of the anti-Arab "peace" treaty between Egypt and Israel. Washington, as numerous statements by officials and commentators in the American press indicate, hopes that in exchange for the multibillion-dollar sop thrown to these countries, the Pentagon will acquire the Etzion Air Force Base on the occupied Sinai peninsula, which would make it possible to keep an eye on the northwestern part of the Indian Ocean, and the offshore moorage at the southern tip of the Sinai peninsula in Sharm-al-Sheikh, an important strategic location on the route from the Suez Canal to the Indian Ocean. The United States intends to make more intensive use of the military base in Dahran (Saudi Arabia), and is considering the possibility of deploying warships at the naval base in Berber (Somalia).

The Pentagon also intends to take on some of the police functions in the Persian Gulf region which were previously performed by the shah's regime in Iran. According to reports in the CHRISTIAN SCIENCE MONITOR, the United States and Saudi Arabia are patrolling the Strait of Hormuz, which connects the Persian Gulf with the Indian Ocean. Besides this, as NEWSWEEK reported on 12 March, joint air force and naval maneuvers are to be conducted, involving U.S. units and units of the "pro-American" Middle Eastern countries.

Pentagon strategists are also putting together special assault forces, capable of engaging in combat in the Arabian desert and the African and Asian jungles,<sup>1</sup> a kind of "fire brigade" which, at a moment's notice from Washington, could also be transferred to the Persian Gulf region to defend the interests of American imperialism in the event of a new oil embargo or the assumption of power by progressive regimes in the oil-producing countries. The training of these forces began in the first half of 1978, after U.S. Secretary of Defense H. Brown made the announcement that the "security of the Persian Gulf cannot be separated from the security of the United States, the members of NATO and America's allies in Asia."

People in Washington have expressed the opinion that the United States still has a chance to regain at least some of its influence in the Persian Gulf zone. Texas University researcher J. Bill and former U.S. Ambassador to Saudi Arabia J. Akins believe that pro-American elements in Iran should be used to restore U.S. influence in this country and that Tehran should be offered "technical, agricultural, industrial and educational assistance."

Similar steps have been proposed in regard to other countries in this region. Analyzing various views on American policy in the zone of CENTO's operations, TIME (12 March 1979) concluded that this policy should be carried out with the use of an entire complex of means and methods, including "economic and

1. According to data in the 12 March 1979 issue of TIME magazine, the nucleus of these assault forces in the initial stage will be the notorious 82d Air Division, which has been active in several intervention operations against sovereign states of Asia, Africa and Latin America, and the 101st Assault Air Division and a division of Marines in a state of combat readiness. According to the NEW YORK TIMES, the expedition corps could be made up of around 100 individuals.



technical assistance along with flag-waving and, possibly, even the concealment of actions aimed at the offer of friendship to some governments which are not prepared to accept it as yet."

Some American political experts, on the other hand, believe that most of Washington's plans hardly seem feasible after a sober assessment of the international situation and the internal political processes occurring in the countries of the Persian Gulf and Middle East. Strong doubts have been expressed in regard to the use of reactionary regimes as full-fledged substitutes for the shah's Iran in this region. Egypt, for example, is encountering serious economic and political problems, the resolution of which will give Sadat no opportunity for foreign policy maneuvers going beyond the bounds of the Egyptian-Israeli bargain. The corruption in this country, which has taken on unprecedented dimensions, is making the Sadat regime, according to J. Akins, just as unstable as the shah's regime was in Iran. Saudi Arabia, which has recently expressed disagreement with the United States on several political, economic and military issues, will most probably not remain under total control by Washington for long, and this is making people nervous. The idea of creating a CENTO-II, according to American observers, is being seriously questioned.

At the same time, it is extremely probable that a situation will develop in this region which will cause the United States to approve of more energetic action on Beijing's part. At the end of last year, TIME magazine analyzed the critical stage of the CENTO bloc and noted the following: "By some ironic twist of fate (the author of this article is obviously taking an ironic approach himself, since it became apparent long ago that Beijing is seeking alliances with the most reactionary, antihumanitarian regimes--A. P), one of the factors contributing most to the reinforcement of CENTO is China... In the geopolitics of the 1970's, China is, in a sense, playing the part of a respectable member of CENTO."

Therefore, Washington's plans, which came to light after the collapse of the regional bloc system, envisaged the use of old means and methods and the elaboration of new ones to reinforce the positions of U.S. imperialism in this explosive part of the world. These plans could escalate tension in the region; they could also undermine or indefinitely prolong the Soviet-U.S. talks, which were once instituted but were then unilaterally broken off by Washington, on the limitation of military activity in the Indian Ocean; they are arousing increasing protest in the people of this region and all peace-loving forces interested in the consolidation of international peace.

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## UNITED STATES PETROCHEMICAL INDUSTRY

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[Article by S. V. Subbotina]

[Text] In recent decades, the production of chemicals has become one of the leading branches of the modern economy, and the branch on which the general level and prospects of national economic development and rates of technological progress largely depend. This is one of the most rapidly developing branches of the American economy.

Prior to the economic crisis of the mid-1970's, there were no noticeable declines in the postwar dynamics of production output. Between 1950 and 1973 the total output increase 6.3-fold in current prices was an 8.3-percent average annual rate of increase.<sup>1</sup> In 1975, when the crisis reached its peak, chemical production decreased by 7.6 percent. The reasons for this were, on the one hand, the diminished demand for chemicals due to production decline in several branches of the processing industry and, on the other, the rise in cost of materials and construction work.

The development of chemization processes and the increasing quantities of chemicals used caused the proportion accounted for by chemicals in the total gnp to grow. The chemical industry's share of the gross national product rose from 2.5 percent in 1950 to 2.8 percent in 1960 and 3 per cent in 1977.

An important factor of chemical production growth, which ensured the continuous expansion of chemical sales markets, was the high rate of product renewal. In the postwar period, the production of 200-300 new and improved chemicals has been mastered each year, and new products, unknown for years before represented 16 percent of the annual value of branch shipments on the average. By 1980, according to the estimates of American economists, the figure could rise to 19 percent.<sup>2</sup> This tendency is promoting the extensive development of scientific research, financed almost completely by private corporations. In some years the expenditures on research and development reached 3 percent of production costs, or 60 percent of capital investments in the branch.<sup>3</sup> Government allocations account for a small share--approximately 9-10 percent.

The transfer to more progressive types of initial materials has had a definite effect on the postwar development of the chemical industry. Whereas coal, food industry by-products and agricultural raw materials were the main sources for the derivation of polymer materials prior to World War II, the rapid spread of the methods of organic synthesis in the postwar period and the resulting changes and expansion in the assortment of chemical products have been accompanied by the accelerated growth of quantities of oil and gas used as raw materials. As a result, a separate branch of chemical production has come into being—the petrochemical industry, based on oil and gas raw materials and manufacturing the products of organic synthesis (particularly polymer materials, ammonia, carbon black and others). At present, liquid and gaseous hydrocarbons represent 98 percent of this production in the United States, 96 percent in Italy and Japan, and 90 percent in the FRG and France.

The conversion to the use of oil and gas raw materials has considerably enhanced the efficiency of production processes and has made it possible to develop new technology and replace separate (interrupted) processes with continuous ones. For example, proportional investments in the production of ethyl alcohol and polyvinyl chloride have been reduced by half, and investments in the production of synthetic rubber have decreased by 60-70 percent. In turn, these tendencies have affected prices. For example, plastic prices in the United States decreased by more than 15 percent between 1960 and 1969, while the average decrease in prices on products of the chemical industry was 2 percent.

The United States is the leader in the world capitalist petrochemical industry. Despite the fairly high rates of development in this branch in some Western European countries and Japan, these nations have been unable to match the scales and efficiency level of U.S. development. For example, in the mid-1970's the output of synthetic ammonia in Japan and the FRG was equivalent to 29 percent and 20 percent, respectively, of the U.S. level, while the corresponding figures were 36 and 29 percent for ethylene, 39 and 16 percent for synthetic rubber, 44 and 20 percent for synthetic fibers, and approximately 50 and 50 percent for plastic and synthetic resins.<sup>4</sup>

The United States' advantages over its rivals stem from the financial superiority of American companies, their higher level of concentration, the developmental level and scales of research and engineering, the speed with which technical innovations are put to practical use in the industry, better forms and methods of production organization and management, and the presence of highly skilled technological and administrative personnel. It was also important that after the American oil monopolies had accomplished broad-scale expansion in the capitalist world, they gained control over a considerable portion of world oil and gas shipments and, for a long time, guarantee that their national economy would be supplied with cheap energy sources. Although the technological gap between the United States and the other capitalist countries in the production of several types of petrochemical products (organic chemicals, heavy-weight plastics and synthetic

fibers) gradually decreased, the United States will probably continue to occupy the leading position in this branch in the near future on the strength of these factors.

Proceeding from this, we can conclude that an examination of the general characteristics and developmental tendencies of the American petrochemical industry will be of considerable interest for assessing the prospects of the branch in general.

Soviet literature has paid little attention to the U.S. petrochemical industry as a separate branch. To a certain degree, this has been due to the lack of specialized statistics indicating the level, scales and dynamics of its development. For this reason, the author felt that it would be possible to discuss only the four leading subbranches for which fairly detailed statistical data are now available: the production of organic chemicals; plastics and synthetic resins; synthetic rubber; synthetic fibers. These subbranches of the petrochemical industry account for around one-third of the total output, the same proportion of the total employees of the American chemical industry as a whole, 40 percent of all material expenditures, half of the value of fixed assets and half of all capital investments.

#### Dynamics and Structure

Petrochemicals represent the most dynamic branch of the chemical industry. The rate of development in this branch is higher than the growth rate of chemical production in the nation as a whole. The rate was particularly high in 1961-1965, during a period of intensive expansion of capacities for the production of a broad assortment of new petrochemicals, reaching an average of 11.5 percent in comparison to the rate of 8.4 percent for the chemical industry as a whole.

As a result of the high rate of product renewal and the rapid expansion of the sphere of product application, stimulated by relatively low prices, petrochemical production in the United States, just as the chemical industry as a whole, was almost totally unaffected by crisis phenomena in the U.S. economy until the mid-1970's. But the economic crisis which was accompanied by serious structural crises, particularly the energy crisis, changed the situation. For example, in 1974 the output of petrochemicals was 15 percent smaller than in 1973 (in 1972 prices), and in 1975 it decreased by another 10 percent (see Table 1).

The crisis affected different types of production in different ways. For example, the production level of plastics was 18 percent lower in 1975 than in 1973, the output of synthetic rubber was 23 percent smaller, the output of synthetic fibers was 8 percent smaller and ethylene production decreased by 9 percent. In 1976 there was a process of slight recovery, and petrochemical production as a whole increased by 3 percent as a whole (in constant prices). It was not until 1977 that the output of the main petrochemicals somewhat exceeded the level of the pre-crisis year (see Table 2).

Table 1

**Dynamics of Petrochemical Production (Conditional Net Product),  
Percentage (1960 = 100)**

	1965	1970	1973	1974	1975	1976	1979 (estimated)
In current prices	167	213	292	369	338	402	533
In 1972 prices	172	220	270	230	220	227	342

"Annual Survey of Manufacturers," editions for corresponding years;  
"U.S. Industrial Outlook 1979," Washington, 1978.

Table 2

**Output of Major Petrochemical Products, Millions of Tons**

	1960	1973	1975	1977	1980 (estimated)	Average annual growth rates (estimated) (1961-1980), %
Ammonia	4.9	14.0	14.9	16.4	17.5	6.6
Ethylene	2.6	10.0	9.3	11.0	13.3	8.5
Plastics and synthetic resins	2.8	13.1	10.7	14.7	17.4 (1979)	10.1
Synthetic fibers	0.3	2.6	2.4	3.2	3.8	13.5
Synthetic rubber	1.4	2.6	2.0	2.5	2.8	3.5

CHEMICAL AND ENGINEERING NEWS; MODERN PLASTICS; TEXTILE ORGANON, issues for 1962-1979.

Certain structural advances have been seen in the petrochemical industry (see Table 3). Prior to the early 1970's, the most significant advances were connected with the quicker growth of capacities for the production of synthetic fibers; as a result, the proportion accounted for by this subbranch in the total output of petrochemicals and in the total value of fixed capital increased 1.8-fold between 1960 and 1973 while the respective figures for capital investments and number employed were 2.1-fold and 2.3-fold. In subsequent years, the figure for this subbranch decreased to almost the 1960 level. This occurred under the influence of the crisis in the textile industry, which reduced the demand for synthetic fibers.



Table 3

## Structure of Petrochemical Production (Conditional Net Product), %

Main subbranches	1960	1970	1973	1975	1976
Organic chemicals	52.3	48.0	49.1	60.6	59.9
Plastics and synthetic resins	26.7	26.0	21.9	20.9	22.5
Synthetic rubber	6.9	5.4	4.2	3.5	3.2
Synthetic fibers	14.1	20.6	24.8	15.0	14.4

Calculated according to: "Annual Survey of Manufacturers," editions for corresponding years.

Manufacturers of synthetic fibers are trying to solve the mounting sales problem by diversifying their products. For example, 410 new and modified types of fibers were developed in the capitalist countries between 1972 and 1976, including 53 in the United States. Improvements in the quality of these products have taken the direction of giving them bactericidal properties, making them color-fast, adding flame retardants and giving them the characteristics of natural fibers. The United States now produces more than 200 types of synthetic fibers. The greatest dimensions have been achieved in the manufacture of polyester fibers, representing approximately half of the total output of synthetic fibers.

In contrast to this, the structure of organic chemical consumption is diversified, which has guaranteed constant production growth in this field even in crisis years. The high rate of increase in the output of organic chemicals has been due to their widespread use as monomers for the manufacture of polymer materials. Besides this, organic synthesis enterprises produce many different types of solvents, plasticizers, antifreezes, freons, anti-knock additives and other products used in the automotive industry, refrigeration technology, the food industry and medicine.

The production of plastics and synthetic resins has become another dynamically developing subbranch of petrochemicals. The use of petrochemical raw materials necessitated changes in the structure of plastic production and relatively speedier growth of the output of the most progressive types (polyolefins, polyvinyl chloride and its copolymers, polystyrene and the copolymers of styrene, etc.). For example, the proportion accounted for by thermoplasts in the total plastic output in the United States rose from 69 percent in 1960 to 84 percent in 1977.

Because of their excellent physical and chemical properties and the economic advantages of their production and utilization, plastics and synthetic resins, as we know, are widely used in various branches of the economy.

Besides this, under the conditions of the acute shortage of energy sources, one of the main advantages of plastic is the relatively low energy input required in its production process. For example, whereas the production of a kilogram of steel requires 25-50 million joules, and aluminum requires 60-270 million, plastic requires only 10 million.<sup>5</sup> According to the estimates of American specialists, this advantage of plastic will be one of the main reasons that the total consumption of plastic as a substitute for traditional materials will almost double between 1974 and 1980. The replacement of metal with plastic appears particularly promising, since the price of metal is twice as high as the average price of structural plastic. In the future, the correlation of these prices is expected to change even more in favor of plastic. According to American forecasts, this tendency will last for at least the next 10-15 years.

The further expansion of spheres for the application of plastic will be effected by giving plastics electric conductivity and heat resistance properties comparable to those of, for example, aluminum, developing polymer adhesives to be used at temperatures of up to 400 degrees, and by developing photo- and biodegradable, super-shock resistant and non-combustible polymers. The unique properties of the new types of plastic are expected to allow for its use in the construction of bridges, the framework of buildings and other supporting structures after the year 2000.

Synthetic rubber occupies an important place among polymer materials. It accounted for 76 percent of total rubber consumption in 1976. In terms of production growth rates, however, it is lagging slightly behind synthetic fibers and plastics. The slower growth rates seen in this subbranch in recent years are largely the result of a tendency toward reduction in the material-intensiveness of the production of rubber items, mainly tires. Besides this, it is significant that the manufacture of a broader assortment of plastics is crowding rubber out of many fields in which it has been traditionally used (roofing materials, foam, insulation, etc.).

In this way, the continuous improvement of petrochemical products is creating the prerequisites for the development of chemization processes and the augmentation of economic impact. The utilization of these prerequisites, however, will depend largely on the present and future state of the raw material base of the branch.

#### Development of Raw Material Base

In the industrial capitalist countries, oil and gas are used primarily as fuel. The increased output of petrochemical products, however, is causing the proportion accounted for by chemical production in total gas and oil consumption in the United States to constantly rise. For example, between 1950 and 1975 it rose from 0.7 percent (for oil and gas combined) to 6 percent for oil and 3 percent for gas. By 1990, 7 percent of the natural gas used in the country and 10-12 percent of the oil are expected to undergo

chemical conversion.<sup>6</sup> For the sake of comparison, we will note that the Western European petrochemical industry accounted for 7 percent of total oil consumption in 1975, but its share is expected to double by 1985.<sup>7</sup>

The distinctive features of technical progress in individual countries give rise to differences in petrochemical consumption patterns. In the United States, gases derived during the oil refining process and natural gas prevail. Here, in connection with the rapid growth of the vehicle pool, processes of secondary petroleum refining are being widely instituted; these provide for a larger output of high-octane gas and the most valuable chemical raw materials. In contrast to the United States, in the Western European countries and Japan the main petrochemical material is naphtha, light-weight, low-octane fractions of petroleum. The oil refining industry in these countries is engaged primarily in the manufacture of diesel and boiler fuels and is distinguished by its lesser scales of secondary petroleum refining. The natural gas extracted in these parts of the world contains less of the valuable high-boiling components than U.S. natural gas and is limited in its application. In the future, the significance of natural gas as a raw material will probably increase in the Western European countries in connection with the discovery of rich deposits under the floor of the North Sea.

In connection with the relatively high rates of development in the U.S. petrochemical industry, on the one hand, and the shortage of oil and gas raw materials on the other, the main problem of the branch at present, and even more so over the long range, is its supply of raw materials and energy. In the structure of the raw material balance of the American petrochemical industry, gas represents 63 percent and petroleum products represent 37 percent, while petroleum accounts for 90 percent of the energy balance.<sup>8</sup> In connection with the rising cost of liquid and gaseous hydrocarbons, a great deal of attention is being given to the problem of conserving energy resources and the elaboration of more effective chemical and technological processes.

A great deal of significance is being attached to the fuller and more comprehensive use of raw materials. There are still substantial reserves in this field. For example, only 15 percent of the ethane and 50 percent of the propane contained in natural gas in the United States undergo chemical processing, while the rest is consumed as fuel. Technically, however, the more complete extraction of these valuable hydrocarbons is possible (up to 90 percent of ethane and up to 98 percent of the propane). The use level of propane and propylene petroleum fractions is 85 percent, and the figure for the butane and butadiene fraction of hydrocarbons is 40 percent; this indicator is expected to rise to 100 percent as a result of the incorporation of the latest technological processes, particularly cryogenic techniques.

The heavy fractions of petroleum are being used in greater quantities for the purpose of expanding the raw material base in chemical processing. Processes have been worked out for the derivation of chemical products by means of the pyrolysis of fuel oil and petroleum and the steam cracking

of petroleum. New plants will probably be built with a view to the priority use of precisely this raw material. Whereas 65 percent of the output of ethylene--the major and most heavy intermediate petrochemical product--in 1977 was based on liquefied petroleum gases, 33 percent on the heavier liquid petroleum products and 2 percent on the waste gases of oil refining, in 1990 up to 65 percent of the ethylene will be derived from liquid petroleum products.<sup>9</sup>

The modification of raw material consumption patterns has been accompanied by changes in production costs. For example, expenditures on raw material for a unit producing 454,000 tons of ethylene a year were the following in 1972: 14 million dollars when ethane was used as the raw material, 28 million when propane was used and 47 million when petroleum was used. In 1978 the requirements for a unit of the same capacity (500,000 tons) had risen, primarily in connection with the rising prices of oil and gas raw materials--up to 70 million, 133 million and 217 million respectively. As a result, the cost of producing ethylene rose from \$74-89 a ton to \$307-344.<sup>10</sup>

The wider use of liquid petroleum fractions as raw material is connected with the planned growth in the output of several valuable by-products of ethylene production. For example, by 1990 the production of 100 tons ethylene is expected to result in the derivation of 50 tons propylene, the raw material for the production of polypropylene (one of the more promising types of plastics), instead of the 25 tons derived in 1977.<sup>11</sup> Whereas around 80 percent of the butadiene (raw material for the synthetic rubber industry) was derived as the end product at the beginning of the 1970's, by 1987 it will be derived exclusively as a by-product of ethylene production.

No significant changes are expected to take place in the structure of the raw material base of ammonia production in the next 10 years. The leading type of raw material will still be natural gas. To a considerable extent, this is due to the economic advantages of its use in comparison to other types of raw materials--a lower level (1.5-2 times lower) of necessary capital investments and lower (2-3 times) expenditures of electrical energy.<sup>12</sup>

Therefore, the raw material base of American petrochemicals is being expanded through the use of more flexible, comprehensive and intensive methods for the processing of petroleum and natural gas. This is being accomplished by means of the heightened derivation of valuable components from petroleum and natural gas and the inclusion of heavy petroleum fractions in the chemical process. This kind of reorganization will require tremendous financial expenditures on the development of new technology and the improvement of the production system. This is complicating the financing problem.

#### Peculiarities of the Investment Process

The attempts of the U.S. petrochemical monopolies to preserve their high profit levels and strengthen their competitive positions at a time of rising prices on raw materials and market saturation with petrochemicals is forcing

them to make broader use of the achievements of technological progress, improve technology for higher labor productivity, reduce the length of the production sequence, increase output, improve product quality and conserve raw materials and energy. This is being done by means of combined production, a higher level of automation, the use of new catalysts, the augmentation of the role of steam-phased processes, electrochemical and radiation methods and the broader use of high-vacuum technology and superhigh pressure.

The renewal of the production system in connection with these changes requires huge capital investments. For example, between 1960 and 1976 total investments increased 6.6-fold (in current prices) and reached 3.5 billion dollars (see Table 4). Of this sum, 2.2 billion was invested in the production of organic chemicals, 750 million in plastics, 530 million in synthetic fibers and 46 million in synthetic rubber.

Table 4

Investment Dynamics, Percentage (1960 = 100)

	1965	1970	1973	1974	1975	1976
In current prices	250	262	394	468	566	660
In 1972 prices	242	214	286	300	328	343

"Annual Survey of Manufacturers," editions for corresponding years.

A substantial influx of funds was accomplished through the widespread penetration of the petrochemical industry by oil firms. The construction of modern enterprises in this branch requires large capital expenditures. For example, a plant for the production of 545,000-590,000 tons of ethylene a year costs approximately 600 million dollars. Combined oil refining and petrochemical production units can substantially reduce proportional investments by means of the extensive use of the by-products of oil refining as valuable chemical raw materials. The reliability of energy supplies is of great significance at this time of severe energy crisis. This is why most of the petrochemical capacities are now being constructed by oil monopolies, which have diversified sources of raw materials.

At the same time, in some cases, petrochemical enterprises are built by chemical companies. For example, Union Carbide is working on the plans for a plant for the intensive processing of petroleum into final chemical products. By 1984, the appropriate technology should be available. It must be noted, however, that the energy crisis and the rising cost of production due to higher prices on raw materials are motivating the chemical monopolies to limit their output of basic petrochemical products to an amount



sufficient only for the satisfaction of intrafirm needs and to expand the production of technologically more complex and, consequently, more expensive products.

One of the characteristic features of the structure of branch financing is the high percentage accounted for by company funds in comparison to outside investments. For example, up to 75 percent of gross capital investments are derived from amortization allowances and undistributed profits.

Mounting financial difficulties are changing the reproduction structure of capital investments--that is, in the correlation of expenditures on the modernization of fixed capital and its expansion. For example, whereas the larger portion of capital investments was used for the expansion of fixed capital in the 1960's, approximately 60 percent was already being spent on modernization in the 1970's.

In turn, the accelerated obsolescence of equipment and the broad scales of modernization are changing the technological structure of capital investments,<sup>13</sup> increasing the percentage spent on equipment. This is also partly a result of the specific features of petrochemical production, for which the construction of whole buildings is not essential: equipment is generally located outside. The correlation between active and passive capital investments in the petrochemical industry is higher than in the chemical industry as a whole--86 percent and 81 percent respectively.

In an attempt to reduce production costs and increase their profits, petrochemical companies are investing considerable funds in the automation of production processes, which also increases active capital investments. For example, expenditures on the acquisition of control and measurement equipment and automation units represented 20 percent of all capital investments in the branch in 1976.

The extensive use of computers in the management of production processes is a characteristic, as we know, of a new stage in the development of automation. In the United States, the use of computers enhances the productivity of petrochemical units by an average of 2-6 percent. The larger the enterprise, the greater the impact produced by the use of computers. For example, an information control system at a petrochemical combine of the Phillips Petroleum firm in Texas which cost 1 million dollars (\$700,000 for the equipment and its maintenance and \$300,000 for installing the system) produces a savings of \$950,000 a year by increasing production output and reducing operational expenditures. As a result,<sup>14</sup> the cost of buying and installing the equipment was recouped in one year.

The use of mini- and micro-computers has increased considerably in petrochemical production. The mini-system costs approximately \$150,000, or no more than 20 percent of the cost of a large computer, but is virtually just as productive as the large machine.

Additional capital investments are also needed for environmental protection measures. In 1976, 12 percent of all investments in the branch were used for this purpose. In 1981 these expenditures are expected to total around 900 million dollars. Of this amount, 313 million will be invested in the purification of exhaust gases, 460 million will be used for the purification of sewage and 110 million will be invested in the processing of solid production waste.<sup>15</sup>

The protection of the atmosphere in the United States involves the extensive use of minimum-waste technological processes with the comprehensive processing of waste materials, the improvement of pressurized equipment and the use of chemical and physical methods for the purification of exhaust gases. To prevent water pollution, recycling systems are used, as well as methods for the mechanical, oxidizing, chemical and biological purification of sewage. Polluted water is pumped into deep underground horizons. In connection with the stricter water quality standards, new technological methods of water purification are being worked out. The use of chemicals for this purpose is increasing. For example, 590,000 tons of chemical materials were used in 1974 for the treatment of water in the United States. By 1985 the figure is expected to rise to 2 million tons.

Therefore, the objective need to modernize fixed capital in the branch at a time of rapid inflationary rise in the cost of equipment and construction work, and the increased expenditures on environmental protection, which are considered unproductive by private monopolies, are complicating the financing problem. At this time, the growth rate of capital investments in petrochemicals, according to American economists, is already insufficient for the retention of the United States' leading position in the technical equipment of production--a position occupied by the nation for a long time. In spite of the considerable increase in capital investments, they cannot guarantee the necessary enlargement of capacities or the timely replacement of old equipment. At the same time, the change in the structure of capital investments in the direction of increased expenditures on the modernization of equipment is enhancing the effectiveness of petrochemical production; over the long range, this could alleviate the financing problem somewhat.

#### Questions of Production Efficiency

The improvement of chemical technology is creating the preconditions for the substantial enlargement of petrochemical capacities. For example, in the last 10-15 years the capacities of the average petrochemical plant in the United States increased 3-5-fold. To a considerable degree, this was achieved by establishing a closed production cycle in some areas and through the more complete processing of by-products. The large dimensions of enterprises also allow for the widespread use of computer-based automated control systems and better and more powerful equipment and reduce proportional expenditures of labor and capital. The reduction in proportional capital investments in connection with the lower cost of constructing buildings and

installations, transport lines, pipelines, power supply systems and automation equipment—calculated per unit of production capacity—took place more quickly in the early 1970's than the reduction in production costs in connection with lower expenditures on preventive maintenance, wages and amortization deductions. Since the mid-1970's, the enlargement of the capacities of enterprises and separate installations in petrochemical production has slowed down somewhat. Nonetheless, according to American specialists, the percentage accounted for by large units in the total capacity of petrochemical production will continue to increase.

The speedy renovation of technology and production, the development of the raw material base of the branch, the augmentation of production capacities, automation and the broader use of electronic equipment in isolated areas and on the scale of the shop and plant are all improving the technical and economic indicators of the branch. At the same time, due to the contradictory nature of technological progress under capitalist conditions, the dynamics of some indicators of efficiency display contradictory tendencies at different times, reflecting the particular phase of the economic cycle and the degree of economic instability (see Table 5).

Table 5

Dynamics of Some Indicators of Petrochemical Production Efficiency

	(1) Единица измерения	1978 г.	(2) Индексы роста (1960 г. = 100)					
			1967 г.	1970 г.	1973 г.	1974 г.	1975 г.	1976 г.
(3) Производительность труда (условно-чистая продукция на одного занятого)	(7) тыс. долл.	37,0	130	139	161	154	154	155
Капиталоотдача (отношение стоимости условно-чистой продукции к стоимости основного капитала)	(8) долл./долл.	0,33	139	132	145	122	113	106
(4) Капиталовооруженность труда (стоимость основного капитала на одного занятого)	(7) тыс. долл.	111,2	99	103	119	124	136	145
(5) Материалоемкость продукции (отношение материальных затрат к стоимости условно-чистой продукции)	(8) долл./долл.	1,01	95	93	112	111	122	123

Calculated according to: "Annual Survey of Manufacturers," editions for corresponding years.

All value indicators are expressed in 1972 prices.

Key:

1. Unit of measurement
2. Gross indices (1960 = 100)
3. Labor productivity (conditional net product per worker)
4. Capital return (correlation of value of conditional net product to value of fixed capital)
5. Capital-labor ratio (value of fixed capital per worker)
6. Material-intensiveness (correlation of material expenditures to value of conditional net product)
7. Thousands of dollars
8. Dollars/dollars

Prior to the economic crisis of the mid-1970's, the development of American petrochemical production as a whole displayed a tendency toward resource conservation. The rise in labor productivity levels was accompanied by a rise in capital return and the capital-labor ratio and the reduction of material-intensiveness. The rise in labor productivity played a decisive role in the augmentation of production efficiency. For example, between 1960 and 1973 output per worker increased 1.8-fold while capital return increased 1.5-fold (see Table 5). Later, however, all efficiency indicators took a dramatic turn for the worse. There was a decline of 15 percent in labor productivity, and of 18 percent in capital return; material-intensiveness increased 30 percent between 1970 and 1976.

In the years following the crisis, when economic conditions improved in the nation, basic efficiency indicators began to rise once again. This suggests the intensive factors of production growth will prevail over the long range in the development of the U.S. petrochemical industry. This is also indirectly attested to by the higher rates of rise in labor productivity in comparison to the rise in the capital-labor ratio.

### Prospects

American specialists are far from optimistic about the prospects for the development of the petrochemical industry. According to their predictions, production growth will slow down in the next 10-15 years. For example, they expect ethylene production to increase at an average rate of 6-7 percent a year until 1990, as compared to the 8.8 percent of the 1961-1977 period, with respective figures of 6-8 percent as against 10.2 percent for plastic and synthetic resins, and 3.5-4.5 percent as against 15 percent for synthetic fibers.<sup>16</sup> One of the main reasons for this deceleration will be the relative saturation of the market with petrochemical products. Under these conditions, the development of new types of products and the modification and improvement of existing ones are acquiring great significance.

In turn, the lower production growth rate will bring about changes in branch structure. The percentage accounted for by synthetic fibers in the total petrochemical output will probably decline considerably since its production growth rate will be the lowest. At the same time, new subbranches will be developed by the end of the century, which are now producing food additives but are also working on food protein products synthesized from petroleum raw material. Most of the total capital investments in this branch will be used for the modernization of the production of organic chemicals, plastics and synthetic resins and the enlargement of capacities for new petrochemical products.

In connection with the rising cost of oil, new sources of raw material will be sought for the derivation of the products of organic synthesis. In the future, there may be a partial return to such raw materials as coal, wood, starch and lignite. Coal-synthesized chemicals are expected to compete with petrochemicals in the 1990's in terms of basic components of production

cost. By that time, several plants are to be erected for the gasification of coal to compensate for the energy shortage in some parts of the nation. These plants will be able to satisfy around 10 percent of the total need for chemical raw materials in organic synthesis.<sup>17</sup>

Extensive opportunities are being presented for the use of the products of coal gasification in ammonia production. Plans are being drawn up in the United States for integrated industrial complexes for this production. According to the forecasts of the Coppers firm, 25 new plants with a capacity of 1,200 tons of ammonia a day, or 14 larger ones with a capacity of 2,100 tons, will be built in the nation at the end of the 1980's. This requires huge capital investments--around 3-3.5 billion dollars (in 1976 prices), approximately equal to total branchwide investments in 1976. According to American estimates, the implementation of these plans could make approximately 1 billion cubic feet of scarce natural gas available for satisfying the needs of the public utility sector.<sup>18</sup> But the possibility that these plans will be carried out prior to the end of the century is in doubt because of the high capital-intensiveness of the projects and the complexity of the problems connected with the need for radical reorganization of the production system. For this reason, in spite of the rising prices of oil and gas, they will probably remain the major types of raw materials used in ammonia production in the foreseeable future.

As for production efficiency, technological progress will continue to augment labor productivity, which will retain its role as the leading factor determining efficiency. Another indicator of efficiency--capital return--is expected to decrease in the near future as a result of increased expenditures on environmental protection and the acquisition of costly automatic equipment, which will require additional capital investments. Material-intensiveness, which has increased noticeably in recent years, will continue to increase for at least the next 5-7 years.

The escalation of inflationary processes in the American economy will considerably impede branch development. The expected high rate of rise in prices (5 percent a year until 1990), in combination with increasing expenditures on purification equipment, will bring about a substantial rise (8-10 percent a year) in the cost of constructing petrochemical and chemical facilities.<sup>19</sup> Whereas the cost of producing petrochemicals decreased during the pre-crisis period as a result of improvements in technology and the enlargement of capacities, production costs will depend primarily on the dynamics of material and construction costs in the future.

In connection with the broader and more intensive use of chemicals in the economy, representing one of the highest stages in the development of social production, the U.S. petrochemical industry as a whole will most likely maintain a relatively high growth rate in the future--higher than the rate of increase in total industrial output. This is a natural tendency, resulting from the continued development of the technological revolution.



# FOOTNOTES

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## FOCUS ON UNITED STATES POLICY IN SOUTHERN ASIA

Moscow SSHA: **ЭКОНОМИКА, ПОЛИТИКА, ИДЕОЛОГИЯ** in Russian No 7, Jul 79  
pp 75-76

[Article by N. S. Beglova]

[Text] According to many American press organs, the events in Iran will indisputably have a serious and prolonged effect on U.S. policy in Asia, particularly in South Asia--a region bordering directly on Iran. Commentators have noted that, for example, on 11 January--that is, soon after the situation in Iran grew tense--the United States announced its willingness to supply Pakistan with weapons, although shipments of American weapons to countries in this region had not been resumed since 1975, despite the fact that the embargo had been officially lifted.

Washington's move was seen as the beginning of a definite revision of some aspects of American policy in South Asia, particularly in relations with Pakistan and India--relations which had been extremely uneven in recent years. In connection with this, the WASHINGTON POST reported: In the White House, they "suddenly remembered" that "the United States was a long-time friend of Pakistan."

This "gesture," however, was too late: Following Tehran's example, Islamabad announced its withdrawal from CENTO.

As the English GUARDIAN reported in connection with this in March 1979, in Pakistan this bloc had long been an "object of criticism.... The revolution in Iran accelerated the natural course of events and contributed to its total collapse."

In an article in ASIAN SURVEY,<sup>1</sup> Western Michigan University Professor L. Ziring expresses the opinion that Pakistan, for many years a "link in the American chain of blocs," fell out of this chain "through the fault of the United States." Ziring believes that Washington made several errors in its

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1. L. Ziring, "Pakistan and India: Politics, Personalities and Foreign Policy," ASIAN SURVEY, July 1978.

policy toward Pakistan. In particular, it was Washington's error, he writes, that the United States refused to supply Pakistan with modern weapons even after the lifting of the embargo.

On the whole, this article is a disguised appeal to set up a "strong" Pakistan in opposition to India, to aggravate conflicts between these countries and to take advantage of these conflicts--that is, essentially to resurrect the "balance of power" policy in South Asia.

In an article printed in ORBIS,<sup>2</sup> L. Rose, University of California professor and editor of ASIAN SURVEY, makes an attempt to analyze the reasons for changes in U.S. policy priorities in the region. South Asia, he remarks, always played a significant part in American policy in Asia as a whole, as this region serves as a kind of connecting link between two regions of great strategic importance for the United States--West Asia (the author is referring to Iran, Turkey and Afghanistan--N. B.) and Southeast Asia.

In his examination of U.S. policy in South Asia in the 1970's, L. Rose points out several factors which, in his opinion, heightened U.S. interest in the region, particularly in India: These were, firstly, the "dramatically increased significance" of the Indian Ocean zone for the United States; secondly, India's emergence as one of the largest Asian powers in the 1970's and its considerably increased influence in the developing countries (as the author stresses, India now often has the deciding vote when the position of the developing countries is being defined in negotiations within the framework of the so-called North-South dialog); thirdly, the possibility (which American specialists consider to be quite real) that two states in South Asia--India and Pakistan--will be capable of producing a nuclear weapon within the next 10 years; fourthly, the fact that the South Asian countries are among the largest consumers of American agricultural surplus, and this has supposedly contributed to the appearance of a certain degree of "interdependence" in the relations between these states and the United States (here the author prefers to remain silent about Washington's attempts to use this semblance of "interdependence" in the interests of its "stick and carrot" policy in South Asia).

It must be said that L. Rose also advises smooth cooperation between the United States and the Soviet Union during periods of tension in South Asia, since the combined efforts of the United States and USSR could prevent new conflicts from arising or spreading to areas outside this region.

Although Rose speaks of the expediency of U.S.-Soviet cooperation in South Asia, he also recommends more vigorous unilateral action by the United States in South Asia. The policy of "inconspicuous presence" on the subcontinent no longer corresponds to American interests in this region, Rose writes. The

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2. L. Rose, "The Superpowers in South Asia: A Geostrategic Analysis," ORBIS, Summer 1978.

United States must intensify its "political and economic" penetration of South Asia, as any weakening of U.S. influence in this region could endanger the future of "American goals and plans on the global level."

It has not been long since these articles appeared in ASIAN SURVEY and ORBIS, but the situation in South Asia has changed considerably. Today Ziring's recommendations concerning the expediency of stronger allied relations with Pakistan and Rose's conclusion about the need for more active American policy in the region obviously require a second look.

The fall of the shah's regime in Iran and the collapse of CENTO has put new issues and new problems on the agenda.

It was no coincidence that U.S. Deputy Secretary of State W. Christopher visited India and Pakistan in March 1979 for discussions with the governments of these countries on problems connected with U.S. policy in this part of the world. According to the Indian magazine BLITZ, during Christopher's stay in New Dehli, a convention of American representatives in the South Asian countries was also convened for the purpose of discussing the situation and making changes in American policy in this region.

In this way, life is introducing its own corrections into the calculations and recommendations of American strategists, and Washington must now deal with even more pressing problems in connection with U.S. policy in South Asia.

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## BLACK MEN IN THE AMERICA OF THE LATE SEVENTIES

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 76-79

[Article by S. A. Chervonnaya]

[Text] The subject of black America almost disappeared from the pages of the American bourgeois press in the beginning of the 1970's. Articles about the "progress of the blacks" only appeared from time to time. They asserted that racial discrimination was supposedly a thing of the past and that black Americans were enjoying "equal opportunities" on a level with whites.

Statements of this kind are refuted by the authors of a survey on the status of blacks in America today, printed by the weekly NATION (16 December 1978). The articles in this survey were written by veterans of the struggle for racial equality in the United States: prominent historian Carey McWilliams, University of Wisconsin instructor Herbert Hill, Columbia University Professor Charles Hamilton and journalist Roger Wilkins. As the editorial points out, the survey represents an attempt to answer the main questions that are disturbing black Americans today: Will it be possible to resurrect the movement for social justice in the near future? How should one measure the impact of the public disavowal of official promises, the hopelessness which has seized huge segments of the population and which has been engendered by the scandalously high rate of unemployment, and the loss of faith in the possibility of politics?" (p 660).

Comparing the high expectations of the black Americans in the mid-1960's with the mistrust and apathy that now reign in the American black ghetto, Roger Wilkins asks how these high hopes could have turned into despair, passivity and apathy? Why did this occur so quickly? (pp 664-666). Some bourgeois authors believe that one of the reasons for this is the absence of leaders capable of replacing M. L. King in the black movement. Wilkins, however, refutes the thesis about the absence of talented negro leaders and provides another explanation: "The negro leaders of the late 1970's have found themselves on a deserted plateau, the base of which has been created by the apathy of whites and their inability to understand the true position of the black masses, while the top has been created by the lack of response from the White House."



The actual scales of this phenomenon are cogently described by Herbert Hill (pp 666-668). On the basis of an objective analysis of statistical data which were supposed to prove the approach of an age of "black prosperity," he demonstrates that the economic position of the blacks is actually "so catastrophic in nature that it demands the institution of new nationwide federal programs to combat inflation." Hill's own data refutes statements about the "tremendous progress of the blacks." They testify to the "erosion of the economic gains of the blacks" in the 1970's. Whereas the average annual income of the black family had risen slightly by the beginning of the 1970's and was equal to 61 percent of the white family income, by 1976 the correlation decreased once more to 59 percent. The blacks make up 30 percent of all poor Americans, which is triple their percentage in the total population. In the first quarter of 1978, according to official American statistics, 44.8 percent of all blacks lived in poor neighborhoods (in comparison to 8.3 percent of the whites).

Unemployment has been the most pressing problem for black Americans in the 1970's. The rate of black unemployment has always been much higher than the level of unemployment among whites, but it acquired truly catastrophic dimensions in the economic difficulties of the 1970's. Whereas in 1975, according to official statistics, unemployment among blacks was 1.7 times as high as among whites, it was 2.3 times as high in 1978. Official statistics do not provide the full picture of unemployment among blacks, however, since they do not include ghetto inhabitants who have lost all hope of finding jobs.

With deep concern, H. Hill writes about the danger that a permanent unemployed substratum will take shape in the black population, which will doom "a large segment of black urban youth to hopelessness and despair. The social and psychological consequences of this senseless waste of human energy are truly tragic," he writes.

According to H. Hill, the relative calm which seems to prevail in the black ghettos today is deceptive. The current situation in the employment sphere suggests the possibility of new outbursts of protest, "in comparison to which the demonstrations of the 1960's will appear to have been simply a prelude." Numerous commissions created in the last decade to study the reasons for riots in the black ghettos have listed chronic inflation as one of the chief causes. According to H. Hill, however, it appears that white America prefers to forget the dire warnings issued in these reports.

In his article, C. Hamilton (pp 668-671) notes the increase in the number of black elected officials. Between 1970 and 1977, the figure rose from 1,300 to 4,311. In spite of the hopes cherished by blacks and their leaders in the 1960's, however, the rise in the number of black elected officials has not automatically improved the status of black Americans. In the 1970's the blacks learned that although they had been able to elect their own representatives as mayors of such large cities as Atlanta, Chicago or Los Angeles, the economic conditions of black life in these cities would not change. Wilkins cautions black Americans to regard the struggle for proportional representation "not as a panacea," but only as the beginning of a process."

Wilkins, just as Herbert Hill, calls unemployment the main problem facing black Americans today. "Jobs," he writes, "were the main thing the blacks expected from the Carter Administration." The increasing influence of black politicians is attested to by the pressure exerted by the black caucus of the U.S. Congress on the administration and the Congress in the fall of 1978 to promote the passage of the law on full employment and balanced growth. In the form in which this law was passed in October 1978, however, it is actually only a "policy-planning statement which does not guarantee funds for the creation of jobs."

The fact that "most of the job" still lies ahead is also pointed out by Carey McWilliams, who sums up the results of the struggle for civil rights (pp 671-674). This struggle, the author states, was not a revolution, as it was described by many writers in the 1960's. It had limited objectives, but without their attainment the black Americans could not have progressed any further. McWilliams says that the resolution of problems facing black Americans will call for joint action, not only with other minorities, but also with white workers and members of the middle strata. Only this kind of broad-based alliance, the author writes, can stand up to the power "concentrated in corporate headquarters."

In spite of the fact that the articles included in this issue of NATION touch upon many of the problems facing black Americans today, they leave several questions unanswered.

The subject brought up on the pages of NATION magazine was also touched upon in a nationwide Harris public opinion poll, the results of which were published by NEWSWEEK magazine (26 February 1979). The basic conclusions of this study are in sharp contrast to the conclusions drawn by the authors of the articles in NATION. Commenting on the results of the poll, sociologists blame negro leaders for misjudging the present situation in the sphere of racial relations and assert that the white attitude toward blacks and their demands "has not become any worse." Moreover, the ideological and political climate in which the negro movement now has to function presumably favors mass advancement by blacks on many fronts. Let us take a look at the basis for these conclusions.

This poll, which was conducted among whites, revealed broader--in comparison to the previous decade--contacts between white and black Americans; a decrease in the number of whites adhering to racist stereotypes; growing recognition by whites of the need for racial integration. Around 35 percent of the respondents were in favor of "total racial integration" and another 42 percent approved of integration "in some areas." Only 14 percent of the whites declared that they would be "extremely" upset if blacks moved into their neighborhood (in 1963 the figure was 33 percent; in 1966, 71 percent declared that blacks were "moving up too quickly"). The responses to a question about the principle of "affirmative action" were completely unexpected. They contradict the data of previous polls conducted by the same Harris service and indicating radical white opposition to this principle. This time, 70 percent of the white respondents were in favor of "special training and counseling" for minorities; 71 percent agreed that "after many years of discrimination, the establishment of special programs to assist women and minorities in making use of equal opportunities in employment and education is justified." As

NEWSWEEK magazine pointed out, however, the results of this poll suggest that many people simply agreed with statements contrary to their own beliefs. This is also attested to by the fact that 76 percent of the respondents insisted on the need to inform minorities "that they have no right to any kind of special privileges and must rely only on their own personal ability." Criticizing the results of the poll, Eleonora Norton, head of the Equal Employment Opportunity Commission, remarked: "If you discount everything that people say just because it sounds good, you will see racism." But it is precisely on these responses that the authors of the poll base their conclusion about the negro leaders' "misjudgment" of the attitudes of many white Americans.

The accuracy of the negro leaders' judgment is confirmed by the results of the second part of the same Harris poll, which was conducted among blacks. The overwhelming majority of black Americans believe that there is still a great deal of discrimination. Around 74 percent declared that they had experienced discrimination in hiring for "white-collar" jobs, 73 percent had experienced it when the question of advancement to managerial positions had come up, 68 percent had encountered it in the hiring of skilled laborers, 58 percent had encountered it in an attempt to find decent lodgings, and 61 percent had encountered discrimination in wages. These data have remained almost unchanged since 1970, while the percentage of whites who feel that racial discrimination has almost disappeared is constantly rising.

The data of this survey attest to a further decline in the faith of black Americans in American society's desire to achieve racial equality. Only a third of the blacks still believe that government institutions are "truly interested" in the achievement of equality by blacks, while 71 percent of the white Americans adhere to this view. The deterioration of the racial climate in the United States is also attested to by the considerable rise, in comparison to 1970, in the number of blacks who feel that government institutions and individuals in power do not care what happens to the blacks. Black Americans also diverge sharply from whites in their assessment of the severity of the problems facing them--43 percent of the blacks and only 11 percent of the whites named unemployment as the most pressing problem for blacks. Moreover, 93 percent of the whites said that "it is easier for blacks to find jobs today than it was 10 years ago." "Whites obviously do not realize the depth of black impatience and despair," the report commenting on the findings of the poll admits.

The results of this poll, which demonstrate how far many white Americans are from a realization of the severity of the problems blacks have to face, refute the statements made by the authors of the report about the willingness of white Americans to accept special programs of mass assistance for blacks. The same kind of poll was taken by the Harris service more than 6 years ago. At that time, the sociologists who conducted the survey had to admit that "in their views of America, white and black Americans have never been as far apart."<sup>1</sup> The results of the latest study confirm these conclusions.

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1. THE HARRIS SURVEY, 23 November 1972.

## DANGERS OF CONTROVERSIAL COURSE

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79 pp 79-82

[Article by P. T. Podlesnyy]

[Text] Questions of the further development of relations with the Soviet Union have been and remain at the center of an intense struggle in U.S. political circles and the subject of sharp debates in the press and in scientific literature. Substantial space is allotted to these questions in a special issue of the journal FOREIGN AFFAIRS, headed "America and the World, 1978."<sup>1</sup>

For the first time in the 56 years of the journal's history its publisher--the Council on Foreign Relations--has prepared a special issue examining all the key problems of present-day American policy. The materials concerning detente and the prospects for its further development are of great interest.

Such well-known theorists and specialists as S. Hoffmann, professor at Harvard University, M. Bundy, former president of the Ford Foundation and now a member of a consultative Arms Control and Disarmament Committee, A. Schlesinger, the well-known historian and professor at New York University, A. Ulam, professor at Harvard University, and also H. Bull, professor at Oxford University (England) presented their viewpoint on various aspects of Soviet-American relations. There are many differences between these specialists' views and recommendations, but there are also certain common features worthy of attention.

Above all these specialists are characterized by an awareness of the dangers attendant on appeals by rightwing forces for efforts to achieve U.S. military superiority over the USSR, to create new strategic weapons systems and to subordinate all American policy efforts and resources to the aims of confrontation with the Soviet Union. As Hoffmann notes, it would be at best a simplification to explain American policy difficulties in terms of the lack of U.S. "national will" or the USSR's "subversive actions."<sup>2</sup> The crux of the matter is, he stresses, that U.S. freedom to maneuver in the world is limited by many factors, including the contradictions between the United States and its capitalist allies and between the United States and the developing countries, as well as the state of America's economy, American society and so forth.



The policy of "total struggle" against the USSR would be a "...dangerous undertaking, since it would be an attempt to apply an extremely simplified and speculative scheme to a system of international relations which has become complex. This would only intensify the apprehensions and caution on the part of the USSR."

Citing the example of the revolution in Iran, Hoffmann goes on to stress that even the existence of significant U.S. military, economic and other potential is in itself no guarantee, in the modern world, against defeats and failures for American policy. "Would open military interference by us," he asks, "in events in Iran have helped 'stabilize' the situation in that country any more than it once did in South Vietnam?" And he answers this question himself, in the negative, noting that dissatisfaction with the reactionary shah's regime in Iran became universal. Hoffmann admits in essence that the United States is not succeeding in eliminating the "chronic weaknesses" of the antipopular, pro-Western regimes in several developing states, despite the great military and economic aid and support from the West.

In essence the common position of the authors of the materials on detente published in the collection lies in the recognition of the paramount significance of achieving positive accords at the U.S.-USSR talks on various aspects of restraining the arms race, and above all the completion, signing and ratification of the SALT II agreement.

"The debates taking place in the United States around SALT II," H. Bull notes,<sup>3</sup> "create the impression that the main point in these debates is not particular details of the agreements being prepared but detente itself, that is, the question of whether the United States should strive as before to lessen tension and expand the scale of cooperation with its opponent, or whether it is expedient for it to enter a new phase of confrontation. The latter prospect arouses a feeling of concern and alarm among America's allies in Europe and the Pacific, as well as among the greater proportion of members of the international community, with the exception of China."

It is true that Hoffmann occupies a relatively skeptical position with respect to the significance of the SALT agreement, but even he cannot avoid that fact that restraining the arms race "is a sphere of common interest" for the USSR and the United States, and he therefore, comes out in favor of "gradual measures in the direction of reducing the level of armaments and limiting their qualitative improvement."

Questions of limiting the arms race are examined in greater detail in a separate article prepared by M. Bundy. In this sphere, the author notes, a contradictory situation has arisen. On the one hand, in the past year it was possible to make gradual progress at the SALT II talks along the path of finding mutually acceptable solutions to the main issues of an agreement whose conclusion and entry into force would be of great significance for strengthening both sides' security and subsequently developing Soviet-American relations. "If the SALT II agreement," Bundy writes, "is ratified, this will be the most substantial achievement in the history of establishing control over the arms race."<sup>4</sup>



On the other hand, it must be seen that the agreement's opponents are stepping up their actions aimed at complicating in every way, and if possible undermining, the completion of the agreement and its subsequent ratification in the U.S. Senate, and linking this process with issues which have nothing to do with the agreement. Bundy justly notes that there are as yet no concrete results at other talks, in particular those on reducing troops and arms in central Europe, and also on a total nuclear weapons test ban. Here he is forced to admit that the elaboration of a treaty banning nuclear weapons came to a halt through the fault of the American administration. It expressed itself in favor of an agreement which would be "permanent" and subject to "appropriate" verification. However, in practice, he notes, the Pentagon and the Department of Energy, headed by the known supporter of the arms race J. Schlesinger, are opposed to the ending of all nuclear weapons tests on a permanent basis, since they wish to keep their hands free to improve American nuclear warheads. As a result of pressure from forces associated with the military-industrial complex, Washington went back on its word and declared its intention of signing an agreement on ending nuclear tests for only 3 years.

An equally contradictory approach on Washington's part is affecting the Soviet-American talks on limiting international trade in and deliveries of conventional types of weapons. The United States is disposed to discuss these questions in relation to certain regions but expressed no desire to do so in relation to others.

The pace of modern international life is putting on the agenda more and more new problems in the sphere of limiting the arms race and of disarmament, problems which demand effective and speedy solutions. U. S. policy aimed at artificially protracting talks along a number of salients can only lead, in the admission of Bundy and other American specialists, to the accumulation and increasing complication of these problems.

The contradictory and ambivalent nature of American foreign policy with respect to the USSR which has manifested itself so clearly in the last 2 years is subjected to serious and well-argued criticism in an article by Hoffmann entitled "The Dangers of the Contradictory Course."

This contradictoriness, in his words, has affected both the general conception of relations with the USSR and concrete directions in Soviet-American relations. Indeed, Washington has spoken, on the one hand, of its desire to continue the policy of detente, and at the same time has tried to reduce the relative weight of cooperation with the Soviet Union and achieve unilateral advantages on a series of questions of relations with the USSR and to make more active use of various levers for influencing the USSR's policy: From the qualitative improvement of strategic arms to trade and economic sanctions against the Soviet Union. As is known, this turned into a general toughening of American approaches to the development of relations with the USSR and complicated these relations. "It is obvious," Hoffmann justly stresses in

this connection, "that it is impossible simultaneously to minimize Soviet-American relations and--although talking of a desire to further develop cooperation--to display greater firmness, since this firmness will make the relations more tense."

Considerable space is allotted in the special issue of the journal, including in the articles by Hoffmann and Bull and in an article on East Asia by the well-known American journalist S. Karnow, to the role of the "Chinese factor" in East-West relations.

Here two features can be observed. The first is the general inclination of American strategists to use the anti-Soviet, antisocialist policy of the Chinese leadership in the West's interests. As Hoffmann "explains," the "Chinese factor" is used to "force Moscow to devote more attention to its eastern border."

The other feature amounts to an awareness that active flirtation with Beijing could entail negative consequences for the United States, including complication of the development of American-Soviet relations. "The Soviet Union is a great power," Bull notes, "and maintaining cooperation with it and with other great powers in preserving peace in the nuclear age remains the priority task of American foreign policy." Karnow puts forth the idea that Beijing's adventurist policy is fraught with the danger of crisis situations emerging in Asia which could assume a global scale and lead to irreparable disaster. "...China," he writes, "must be regarded as an unpredictable factor in the Asian equation."<sup>5</sup>

The Chinese aggression against Vietnam again confirms the well-founded nature of the reservations which have been enumerated with respect to the limitations of Washington's use of the "Chinese factor" as a lever for strengthening its influence and positions in the world, particularly in Asia.

The materials of the special issue also reflect assessments of attempts on the part of the United States to interfere in the Soviet Union's internal affairs under the pretext of "defending human rights." Last summer such attempts led to the United States breaking off certain business contacts with the USSR in the economic, scientific and technical spheres. However, such actions by the United States only erected new barriers to the development of mutually advantageous contacts, Bull notes. Schlesinger does defend the need to continue the campaign in "defense of human rights," but nonetheless admits that such campaigns can be used by the opponents of detente to complicate the achievement of new Soviet-American accords in the sphere of limiting the arms race <sup>6</sup>

In general, on reading this issue of FOREIGN AFFAIRS, one is left with the impression that a significant and influential section of the U.S. foreign policy elite is aware that detente is the most sensible political course for the United States in relations with the USSR.

#### FOOTNOTES

1. AMERICA AND WORLD, 1978 (FOREIGN AFFAIRS, vol 57, No 3, 1979).
2. S. Hoffman, "A View From at Home: The Perils of Incoherence," AMERICA AND WORLD, 1978, pp 463-491.
3. H. Bull, "A View From Abroad: Consistency Under Pressure," AMERICA AND WORLD, 1978, pp 441-462.
4. M. Bundy, "High Hopes and Hard Reality: Arms Control in 1978," AMERICA AND WORLD, 1978, pp 492-502.
5. S. Karnow, "East Asia in 1978: The Great Transformation," AMERICA AND WORLD, 1978, pp 589-612.
6. A. Schlesinger, Jr., "Human Rights and the American Tradition," AMERICA AND WORLD, 1978, pp 503-526.

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CLOUD OF DANGER. CURRENT REALITIES OF AMERICAN FOREIGN POLICY

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 83-90

[Second installment of Russian translation of selected passages from the book "The Cloud of Danger. Current Realities of American Foreign Policy" by George F. Kennan, Brown and Company, Boston-Toronto, 1977]

[Not translated by JPRS]

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## SCIENTIST PAYMENT SYSTEMS

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 91-98

[Article by A. O. Monfor]

[Text] More than 44 billion dollars is spent on research and development in the United States each year. The cost of paying researchers is an important component of research costs today. According to our estimates, expenditures on the salaries of scientific personnel (excluding auxiliary and technical personnel) engaged in fundamental research in universities and federal science centers reached 33 percent of total research costs a few years ago.<sup>1</sup> Approximately the same situation exists in industrial fundamental science and the sphere of applied studies.

The significance of this factor was uniquely reflected in the fact that 64 percent of the scientists working in a typical industrial laboratory considered financial incentives to be the main motivating factor in their research work, while only 36 percent regarded knowledge as the main incentive.<sup>2</sup> The lower the financial status of the scientist, the less incentive he has for "platonic" scientific pursuits and the stronger his desire becomes for a higher salary.

The salary system in the research sphere is regarded as the chief instrument in research personnel management policies. "Money is not everything," the authors of a report on labor problems in the science sphere stress, "but there is no question that it is more important than any other factor. In addition to correlating with all other factors, money is also the most readily utilized and most comprehensible means (of managing scientific personnel--A. M.)."<sup>3</sup>

There is no question that the scientist's behavior is motivated by more than just material factors. An important role is also played by moral incentives, such as professional advancement, work on important or "prestigious" projects with more creative freedom and special working conditions, reserved parking spaces, etc. Moreover, the increasing complexity of scientific work and the greater emphasis on team work augments the importance of these factors. Nonetheless, an analysis of these aspects, which are



sufficiently complex and interesting in their own right, is not part of the intention of this article's author.

American specialists make four basic demands on the salary system of research personnel:

Payment for expenditures of scientific labor in accordance with its results;

Stimulation of scientific personnel for higher efficiency;

Special bonuses for highly productive scientists regardless of their official position, academic degree, age or seniority;

Encouragement of unproductive personnel to look for more suitable work within the laboratory or outside.

Therefore, in the research salary system of American science, the process of exploitation of the scientists is interconnected with the resolution of practical problems in the management of the research team. This is actually accomplished through two intersupplementary types of payment systems: salaries and financial incentives.

Salaries play the main role in the remuneration of laboratory research personnel. All salary systems are based on evaluation of the results of scientific work, the indicators of which are used as basic parameters in the salary system. Final indicators of productivity are used most frequently in these systems (deadlines, results, etc.). In addition, informational characteristics are also used in more complex or comprehensive salary systems (citations, quantity and significance of publications, etc.). The quantity and variety of indicators used in this system can serve as an index of the universal nature and perfection of these systems.

On the organizational level, the salaries of American scientists are set by means of periodic, usually annual, evaluations, during the course of which the productivity of the researcher is assessed, after which his salary is either decreased, increased or left unchanged. The salaries of his laboratory colleagues and the salary level in the particular field of science are taken into account in this process.

The last factor is called "replacement cost." In view of the fact that there is no precise correlation between the salary levels of researcher categories in different laboratories, the administration can use the resulting "scissors" in its own favor. It has been empirically established that research associates do not look for outside jobs until their salaries fall 10 percent below their average market value.<sup>4</sup> Taking advantage of this, some administrators try to set laboratory salaries lower than the average in the particular scientific field, although they risk the loss of some scientific personnel by doing this. Obviously, this practice cannot become universal in nature. As a result of competition, the "scissors" disappear and reappear.

Among the numerous empirical salary systems used in American science, three types can be distinguished, differing in terms of their complexity and the range of productivity indicators employed: "administrative compensation," "ranging" and "qualification systems."

The "administrative compensation" system, which is used mainly in small laboratories, is based on the purely subjective opinions of direct supervisors, who annually review the salaries of their scientific personnel with an eye, as a rule, on their contribution or compliance with demands made on their positions. This system is methodologically unsound and purely of an administrative nature.

The administrative method has been further developed in various "ranging" systems, which are regarded as the most simple and logical approach in some laboratories. In this case, the process of setting salaries can be divided into five stages. The initial ranging of scientists in each research group is accomplished by the direct supervisor, who classifies them according to their total productivity (criteria of goal attainment, contribution to the organization and efficiency of work, etc.).

In the next stage, the higher management of the laboratory does the same for the groups (according to the same criteria).

On this basis, all laboratory scientists are listed, in declining order, according to productivity. For the most productive scientists, salaries are set according to the "replacement cost" principle, and the salaries of the rest are set in line with their position on the productivity list.

Although the "ranging" system is more objective than the previous method, it is still a purely arbitrary and subjective procedure and is not backed up by a substantiated comprehensive approach. This method presents considerable opportunity to use the process of setting salaries to the detriment of scientists.

The various "comprehensive qualification" salary systems, which have become quite widespread in many large U.S. laboratories, are more sound in the methodological sense. They are based on the principle of combining the analysis of various personnel qualifications with their actual level of productivity. This is a more accurate and comprehensive approach to the setting of salaries for specialists with higher qualifications because it gives more consideration than the previously examined methods to a number of factors affecting scientific labor and proceeds from a sounder process of structuralization.

Three major types of comprehensive qualification systems are used in the United States: "professional grades," "differentiated qualification" and "maturity curves."

Various types of professional grades represent one of the most widespread methods of remuneration for scientific work. The dependence of the salary

on the professional position is supplemented by consideration for actual productivity in periodic evaluations. The main advantage of these systems is that they establish some correlation between the salary levels of scientific personnel and the usefulness of their work without mandatory transfer to other jobs.

There are generally three salary levels for each position--base, maximum and minimum--and due to the slight differences between base salary levels (11:13% of the preceding level) and the considerable range between minimum and maximum levels (up to 50 percent above or below the base level), the maximum salary of one position is always higher than the minimum salary of the next. This makes it possible to set higher salaries for productive scientists in low-level positions and also serves as an effective incentive with no need for promotions.

In the United States, the professional descriptions of positions or titles in laboratories, their reciprocal relationships and requirements, not to mention their designations, vary widely both in different institutions of the same type and in different types of institutions. For this reason, a general description of the professional structure can only be made with a certain degree of oversimplification. In industrial laboratories, the structure of scientific titles is particularly flexible and varied; moreover, it is closely connected with productivity and salary levels. In federal science centers, a seven-step professional network has been established for research personnel with general requirements for each grade, pertaining to education, seniority and salary. Universities use the classic academic structure of titles (which has recently been copied by private laboratories) and a more efficient system of financial incentives for productivity. Table 1 represents an attempt to compare levels of scientific titles in the three main types of U.S. research laboratories.

The multistage structure of scientific titles, the broad range of salary levels within each category and the periodic thorough evaluations make the system of professional grades an effective instrument for influencing science personnel. In spite of the constantly publicized official story about "proportional monetary compensation" for scientific work, the disparity between the actual productivity of scientists and the size of their salaries increases almost continuously as the researcher is promoted. This is attested to, for example, by our calculation of the "science output" per 1,000 dollars in salaries paid to researchers on different levels at one federal research center (see Table 2).

When we analyze these data, we must take several factors into account. In the first place, remuneration for scientific work is based primarily on the final result of the work, while here only informational productivity was taken into account. With consideration for final indicators, the degree of underpayment will obviously be less pronounced, but it would be impossible to estimate this difference numerically. In the second place, the reduction of "proportional" expenditures of scientific labor per publication is also

connected with the process by which the scientist constantly improves his own work, the application of more efficient methods of research organization, the accumulation of experience in the writing of scientific articles, the establishment of close contacts with the editors of scientific publications, etc. In itself, this improvement might not necessarily call for a salary raise, if we consider the moral satisfaction derived from this by the scientist.

Table 1

Comparison of Titles Used in Major Types of American Laboratories

Title in industrial lab	Professional grade in federal laboratory	Title in university
Chief specialist, senior consultant	15	School dean
Chief research associate, consultant	14	Professor
Senior research associate	13	Associate professor
Research associate	12	Assistant professor
Research assistant	11	Senior instructor
Junior research associate	9	Teacher-instructor
Trainee, beginning researcher	7	Student teacher

Compiled according to: RESEARCH MANAGEMENT, vol XX, No 4, 1977, p 21; vol XVIII, No 6, 1975, p 30; "Creativity and Innovation in Engineering," ed. by S. Gregory, London, 1972; and several other works.

It should be noted that the system of professional grades has disadvantages as well as advantages. Popular forms of research organization in the United States--project and matrix--do not fit into standard job descriptions and require a more flexible approach. Besides this, the qualifications required for positions, which generally only include two formal parameters--academic degree (bachelor, master or doctor of sciences) and seniority--do not reflect such important aspects of scientific activity as the complexity of the problems being worked on, responsibility for subordinate personnel, etc.

Various comprehensive qualification systems have been worked out and are being actively used at several laboratories, particularly the industrial type, in an attempt to take these and other disadvantages of the professional grade system into account. The purpose of these is to differentiate between

the value of each scientific position, not merely on the basis of titles, but also with consideration for various functions, aspects and factors of the work. This kind of analytical approach to the scientist's position in a laboratory seems more progressive than remuneration simply according to position, since it is difficult to find two researchers occupying the same position in a modern lab, whose functions, authority and other parameters are identical. Contemporary science, with its high degree of specialization and extensive cooperation, calls for the concrete analysis of factors determining the scientific position.

Table 2

**Increased Disparity Between Salaries and Informational Productivity  
of Scientists as They Move Up the Professional Ladder in  
a Federal Research Center**

(1)	Должностной разряд исследователя	7-8	9-8	11-8	12-8	13-8	14-8	15-8
(2)	Число публикаций в год . . .	0,327	0,651	0,914	1,315	1,695	2,004	2,443
(3)	Результативность по суммар- ному показателю публика- ций* (в баллах) . . . . .	1,81	6,66	13,59	23,08	31,56	38,15	45,71
(4)	Зарплата на одну публика- цию (долл./1 публ.) . . . .	19 300	12 300	9 850	7 000	7 100	7 500	7 350
(5)	Выход научной продукции* на 1000 долл. зарплаты (бал- лы публ./1000 долл.) . . . .	0,29	0,83	1,51	2,31	2,63	2,54	2,55

**Key:**

- |                                                                            |                                                                                                        |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 1. Professional grades                                                     | 4. Remuneration per publication<br>(dollars per publication)                                           |
| 2. Number of publications in<br>the year                                   | 5. Output of scientific product per<br>1,000 dollars of salary (publi-<br>cation points/1,000 dollars) |
| 3. Productivity in terms of<br>total publication indicator*<br>(in points) |                                                                                                        |

\* This indicator includes evaluation of the quality of publications on a 100-point scale, adjustments for co-authorship and calculation of the total quantity of publications in the year (for a more detailed discussion, see SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA, No 12, 1976, pp 99-107--Ed's note).

Calculated according to D. Pelz and F. Andrews, "Scientists in Organizations. Productive Climates for Research and Development," N.Y., 1966, p 287; "The Use of Quality and Quantity of Publication as Criteria for Evaluating Scientists," Wash., 1967, p 24.

The differentiated approach to the evaluation of scientific work in an American laboratory generally includes the selection of several typical



factors of scientific activity and establishing their relative importance with the aid of a special standard scale or system of weighting coefficients, on the basis of which points are assigned to each factor. For example, six groups of characteristics are used in the typical American industrial lab: education (evaluations ranging from 35 to 190 points), seniority (39-150), degree of responsibility (48-189), complexity of problems (45-155), sphere and level of relations (10-55) and number of subordinates (30-201). In turn, each group is subdivided into several grades. For example, the complexity of problems could be graded in the following manner: logical answer can be derived through simple analysis--45 points; analysis required, but known approaches can be used--59 points; research and analysis required, but there is a precedent for the case or principle--75 points; complex problems with weak precedent--92 points; complex problems with no precedent--121 points; analysis and synthesis of numerous unconnected factors--155 points.<sup>5</sup>

The total point value of all factors present in the scientist's work will serve as the main indicator determining the size of his salary. In this case, the integral evaluation of productivity, including end results and informational characteristics, will be used as an additional indicator.

Analytical evaluation of scientific work makes it possible to consider many aspects of individual scientific activity, but it is also quite complex. It is obvious that any system for the payment of personnel must meet two specific requirements: It must provide for salary raises commensurate with a rise in qualifications and it must be open and easily comprehended. This presupposes a departure from the rigid association of salaries with positions or titles and from complex multistage systems of salary setting.

These requirements are satisfied by the so-called "maturity curves" or "individual growth curves." The main and deciding parameter here is the scientist's seniority in the organization, which, in combination with the results of his work, determines the speed with which the researcher's salary will rise. After the scientist has been working in the lab for 1 or 2 years and has proved to be fully qualified, his work is evaluated to determine the particular "maturity curve" that best describes his progress. The scientist's future salary raises will depend on his "maturity curve" and annual evaluations will serve as a means of verifying the correspondence between his actual productivity and the level specified in the corresponding curve. If actual productivity deviates from the productivity calculated after supplementary checks, the scientist will be "transferred" to another maturity curve.

"Maturity curves" are formed by connecting the points on a scale of retrospective survey data on salary levels in the scientific field. Five curves are generally drawn up for each scientific specialty, respectively for scientists whose salaries constitute 90, 75, 50, 25 and 10 percent of the maximum salary in the field, but the number of curves can be higher, depending on the number of researchers in this special field in the laboratory.

"Maturity curve" systems present a simple and graphic picture of salary growth commensurate with seniority, they aid in the maintenance of a stable specialist staff, they provide greater security and they encourage scientists to heighten their productivity instead of working toward promotions as the only means of elevating their financial status. All of this has led to the active use of these systems in such famous research organizations as the Los Alamos Laboratory of the University of California, the laboratories of Hughes Aircraft, General Electric and System Development, and several others.

At the same time, the "maturity curves" are based on average statistical growth rates of productivity depending on seniority, which somewhat impedes the progress of researchers whose productivity grows more quickly than the norm and simultaneously simplifies advancement for those who are progressing slowly. Besides this, several reports have testified that the increased productivity of scientists with seniority is of a more complex nature than presupposed by "maturity curves." Finally, the curves themselves require constant adjustment in connection with changes in the demand for scientific personnel, inflationary processes in the U.S. economy and many other factors. These shortcomings have impeded the broader application of the principle, particularly in university laboratories.

These systems for setting the salary levels of research personnel solve, with more or less success, the problem of capitalist compensation for the cost of hired manpower in the research sphere. Because they are essentially based on subjective evaluation (as a result of the assignment of priority to final indicators), however, they primarily reflect the pragmatic interests of monopolistic capital and, consequently, are arousing protest and sharp criticism from U.S. scientists themselves. "The bureaucratic system of wages, which is artificial by its very nature," they stress, "is obviously incompatible with conditions promoting the efficient functioning of scientists."<sup>6</sup> The nature of contemporary scientific labor requires a more objective (from the standpoint of scientific development) and, simultaneously, more efficient approach (since salaries can only be changed after the next scheduled re-evaluation). This approach might partially be accomplished through the use of various systems of financial incentives. According to American science management, "a differentiated system of financial incentives should be established for scientists and engineers, containing the appropriate motivating factors."<sup>7</sup>

Financial incentive systems, which are being used in research labs throughout the United States as a supplement to the salary system, are expected to broaden the range, increase the choice and enhance the impact of financial means of influencing scientific work. At the same time, they perform an important apologetic function in the policy of state-monopolistic capital in regard to personnel with the highest qualifications by representing signs of a "special relationship" with the administration, a "community of interests" and so forth.

In the United States, direct and indirect incentives are used. The first type takes in various kinds of financial bonuses. The second type is mediated by various means of indirect rewards and only takes monetary form at some later time.

Direct regular incentives (or the bonus system) generally take the form of annual bonuses (for example, at Christmas time), awarded for the successful attainment of research objectives and compliance with deadlines, the acquisition of important--from the administration's standpoint--scientific results, and the achievement of high final indicators of productivity. Here the main emphasis is on the achievement of high quantitative indicators of output, such as the number of contracts signed or grants received--that is, on indicators of scientific labor that have a more obvious connection than other indicators to potential profits. It is important to note that bonuses are collective in nature and frequently represent a certain percentage of the total funds allocated to the particular science team for the completion of a project and saved as a result of speedy work or results that exceed expectations. Improvement in the indicators of final productivity causes bonuses to increase in size.

At the same time, the practice of the regular payment of bonuses, according to specialists, has its negative side as well. Scientists who become accustomed to bonuses begin to regard them as a permanent part of their salary. In this way, this type of direct financial incentive loses much of its stimulating effect. Besides this, the dependence of bonuses on final indicators also reduces the effectiveness of their influence on scientists, who begin to attach greater significance to recognition of the informational aspects of their work. The very nature of scientific research, in our opinion, calls for the use of more specific types of rewards in the science lab.

All of this has led to the active use of direct financial incentives of another type in American labs: occasional monetary awards for concrete scientific achievements. This more efficient and flexible method is used in cases involving large-scale scientific results, important discoveries, the publication of major works, the culmination of research projects in inventions, the acquisition of patents, the recommendation of promising fields for further investigation, etc. The size of the award is specially determined in each individual case and serves to reward a specific researcher for a specific result. The individual and specific nature of this type of incentive is postulated in many guides to scientific personnel management in the United States. For example, the recommendations of the American Management Association note the following: "Rewards must be timely; they should be awarded immediately after the value of results has been recognized; they should never be awarded indiscriminately and should be presented to the correct person in each case. It is better to dispense with awards altogether than to give them to the wrong people."<sup>8</sup>

This type of reward either takes the form of royalties, paid out to the holder of the patent by the administration of the firm when rights are transferred, or the form of a financial bonus. In the latter case, the size of

the bonus can vary considerably and amount to tens of thousands of dollars. The minimum award (for a result unconnected with the tangible possibility of implementation) amounts to around 100 dollars or slightly more. In rare cases, particularly in the laboratories of General Electric, the distribution of these sums is left to the discretion of administrative personnel on the lowest level, for whom a special fund is set up for this purpose.

Several large laboratories, mainly industrial, pay out considerable sums in the form of awards for outstanding (in the administration's opinion) achievements. For example, 19 out of 144 companies surveyed regarding their means of financial incentives reported that they used sizeable awards of the Nobel Prize type, amounting to as much as 25,000 dollars.<sup>9</sup>

The efficiency, specific nature and broad range of one-time awards have contributed to their widespread use in U.S. laboratories, but some of them have encountered certain difficulties. It was learned that if a scientist who receives an award is unequivocally informed that he will be expected to display particular effort and diligence from that point on, this incentive has a negative psychological effect on the creative individual. The scientist sees it as a bribe. "If it becomes obvious to a scientist or engineer," American management experts have noted, "that the only purpose of the award is to buy his permanent favorable response to orders or supervision on the part of the administration, it is better not to offer him this kind of award at all."<sup>10</sup> In connection with this, several laboratories have had to make changes in the procedure and setting for the conferral of these awards.

In this respect, the indirect financial incentives take more disguised and complex forms. The indirectness is quite conditional. It is connected with the particular status of scientific personnel in the capitalist society. The stratum of specialists with high scientific qualifications is of special interest to capitalists, who are quite willing to allow these specialists into their own circles. Indirect financial incentives are supposed to convince this part of the intelligentsia, by making use of its dual status and outlook, of the special trust and concern of the administration and of its special relationship with management. In exchange for this, capital demands "patriotic self-sacrifice" from the scientists in capital's own interest.

The most popular form of indirect incentive is corporate profit-sharing, the payment of awards in the form of stocks or other securities. They can be common or preferred, and they can be issued directly or transferred as title securities to the researcher's personal bank account. This type of indirect bonus is used by many private laboratories. Universities and federal centers make use of larger contributions to the pension funds of specialists, higher compensation in the event of temporary unemployment (this was done during the period of high unemployment among scientists in 1970-1972), and the payment of higher wages for overtime and weekend work, which is also frequently done by corporations. Some laboratories pay the premiums on the researcher's personal insurance policies, pay the cost of science junkets, pay all or part of his vacation traveling expenses, etc.



There are also other types of indirect financial incentives. One of these was born in the laboratories of the Kimberly-Clark Corporation, where the most productive scientists have access to a "professional development fund,"<sup>11</sup> from which the specialist, with the consent of the administration, can withdraw funds to finance advanced professional training. This makes it possible for the scientist to attend science conferences, research centers and contracting laboratories, order the literature he needs and so forth; all of this depends largely on the degree to which the scientist is useful to the corporation.

Any examination of the basic types of remuneration offered to research personnel in the United States, both in the form of salaries and in the form of financial incentives, would be incomplete without a calculation of at least their approximate effectiveness. This evaluation can only be made in the most general form because the methods for measuring the impact have not been developed sufficiently as yet. Besides this, only a few labs in the United States are measuring this effectiveness. For example, in the 144 companies previously mentioned, 73 percent of the administrative personnel in research labs had no idea of the effectiveness of their systems for paying scientific personnel.<sup>12</sup>

An analysis of the few data available for investigation has served American specialists as grounds for concluding that the level of effectiveness is not high enough. For example, a study of this problem in the labs of three industrial firms indicated that "there is apparently a low correlation between salary and productivity."<sup>13</sup> In turn, an analysis of the correlation between the level of financial incentive and the "scientific output" in U.S. Air Force laboratories revealed that this correlation was also low (0.205).<sup>14</sup> The lack of correspondence between the size of the salary and informational productivity, which was discussed previously, could be interpreted in the same way.

American science managers believe that this lack of correspondence stems from defects in the methods used to evaluate the productivity of scientific labor. But there is also another reason, and it is the main one. It stems from the very nature of capitalist management of scientific labor.

#### FOOTNOTES

1. This article examines primarily scientific labor, meaning creative labor in the sphere of theoretical and applied research, and does not discuss engineering labor, which is characteristic of the sphere of development. Therefore, the term "research" here signifies theoretical and applied research in general.
2. IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT, vol EM-22, No 1, 1976, p 54.
3. "Careers of PhD's, Academic Versus Nonacademic," Wash., 1968, p 24.



4. Corresponding information about average salary levels can be found in special surveys issued by the American Management Association and other organizations.
5. D. Karger and R. Murdick, "Managing Engineering and Research," N.Y., 1969, p 154.
6. IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT, vol EM-22, No 4, 1975, p 137.
7. Ibid.
8. W. McLoughlin, "Fundamentals of Research Management," American Management Association, 1970, p 101.
9. RESEARCH MANAGEMENT, vol XIX, No 6, 1976, p 25.
10. W. McLoughlin, Op. cit., p 100.
11. RESEARCH MANAGEMENT, vol XVI, No 2, 1973, p 24.
12. Ibid., vol XIX, No 6, 1976, p 26.
13. Ibid., vol XX, No 3, 1977, p 37.
14. R AND D MANAGEMENT, vol 7, No 2, 1977, p 74.

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CSO: 1803

## SPACE TECHNOLOGY IN CIVILIAN INDUSTRIES

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 99-106

[Article by A. A. Vasil'yev]

[Text] When American specialists speak of the practical use, on the national economic scale, of the results of activity in the technically advanced branch of space technology, they are generally referring to three areas of work:

The first is the use of space technology "for its express purpose"--that is, in such fields as communications, meteorology, mineral prospecting, environmental protection, the observance of crops and selection of pastures in agriculture and so forth;

The second is the space industry--a new and developing industry, connected with the use of the unique conditions of space flight (super-intense vacuum and weightlessness) for the manufacture, on an industrial scale, of some medicines, ultra-pure semiconductors, alloys which cannot be produced on earth, etc. Promising types of space activity are also generally included in this field: the creation of cosmic energy systems, the conversion of solar energy and the transmission of this energy to earth in the form of microwave radiation, the creation of scientific and industrial colonies in space and so forth;

The third field, which will be the main topic of discussion in this article, involves the transfer of technical achievements in the form of documentation on technological processes, design and its elements, new materials and substances from the space industry to other branches of the U.S. economy.

Among all the factors motivating government and business circles to consider the transmission of achievements from the space industry to other branches of the economy, the following deserve special mention:

The Carter Administration sees this transmission as one way of overcoming current economic difficulties in the nation, and as a means of reducing the cost of renovating the U.S. production base and heightening the productivity of labor;

Large industrial firms working on assignments for the National Aeronautics and Space Administration (NASA), by incorporating the technical findings of space research projects in their own production of "non-space" commodities, are essentially appropriating and circulating the federal funds allocated to them by NASA. By implementing and widely advertising its program, which is fairly insignificant in terms of scale, for the transmission of achievements, NASA is trying to arouse public interest, which had flagged in recent years, in its activity. It was precisely this that Congressman A. Gore was referring to when he announced at a session of a subcommittee of the House Committee on Science and Technology that "political support for the space program in America will depend largely on the success of the 'technology utilization program'";<sup>1</sup>

Small firms lacking the funds to finance their own investigative research see NASA's program of technology transmission as a kind of lottery in which they might win a profitable technical innovation; as we will show below, this interest is being actively stimulated by the NASA administrators, who are trying to win the support of approximately 300,000 small businessmen.

At the same time, the diversion of even a negligible (around 0.2 percent) portion of NASA's budget and the use of these funds to set up an efficient process for the transmission of information and technology are being opposed by the military-industrial complex, which sees this process as a direct threat to its monopoly on space technology.

The latter has long been one of the main factors stimulating innovations and supplying various branches of the U.S. economy with them. This has been due to a number of factors.

In the first place, during the time since the launching of the first Soviet satellite, around 100 billion dollars has been spent on the development of space equipment in the United States, and a considerable portion of this sum has been used for research and investigation. These colossal expenditures naturally led to a much higher level of scientific and technical work in the space industry than in the majority of other branches of the economy.

In the second place, the specific nature of space equipment led to the creation of a widely diversified branch, closely connected with almost all other branches of industry. At the same time, during the process of work on space programs, the very operational conditions of space vehicles necessitate the miniaturization of structures and the reduction of their weight, the guarantee of their maximum reliability over a long service life, their guaranteed operability in a great variety of conditions and so forth--that is, all that is of indisputable interest to representatives of other branches.

The significant economic potential of space equipment for other branches of industry is attested to by a NASA-contracted selective evaluation of the economic effect of the industrial application of the results of only a few specific developments in the field of gas turbine engine building and cryogenic technology, as well as integral schemes (which laid the basis for the

production of micro-calculators) and programs for calculating the strength of complex structures. According to the estimates of the Matematika firm, the incorporation of just these innovations in the production sphere has provided the firms using them with additional income of 7.5 billion dollars in the last 18 years.<sup>2</sup> It was precisely the belief in this potential and the desire to study the process by which achievements could be transmitted from the space industry to civilian branches of the economy, as well as to create some kind of mechanism for efficient transmission and the management of this process, that resulted in the organization of the Office of Industry and Space Technology as part of NASA in 1962. The office immediately began to draw up a special program for space technology utilization. The purpose of the program was to "ensure the broadest possible practical use and proper distribution of information pertaining to NASA activity and findings." It should be stressed that this program does not cover the entire process of technical transmission, since the lion's share of the work, which is virtually impossible to keep precise track of, takes place outside the public sector, through firms working on NASA contracts.

From the very beginning of its activity, the current administration has given considerable attention to the problem of increasing the "return" on space equipment. One of the latest measures in this field was a presidential directive of 11 May 1978, specifying that all necessary steps should be taken for the broader dissemination on the nationwide scale of research findings obtained during the implementation of space programs.<sup>3</sup> The directive was aimed, in particular, at the reduction of interdepartmental friction and the relaxation of restrictions on the use of technical developments by civilian departments. The same directive created the Space Policy Analysis Committee, one of the main responsibilities of which is to oversee the implementation of policy regarding the use of space technology in other branches of industry.<sup>4</sup> These measures particularly stress the more extensive use of space technology in communications, meteorology, crop observations and so forth, but it is obvious that the program for the transmission of technical achievements directly to non-space branches of the economy will also become an object of the committee's attention.

The program of space technology utilization is being carried out in two main fields.

The work in the first field initially consisted mainly in the dissemination of information about technical innovations, including information on new devices, materials and technological processes, consultations services, and the transmission of computer problem-solving programs and the appropriate documentation to the private sector. Information is distributed through nine technological centers, operating mainly in large universities,<sup>5</sup> which have jurisdiction over consultation points (11 in all).<sup>6</sup> They interact directly with clients, offer counseling services and arrange transactions. The work of these centers is organized in such a way that the information resources of any one are accessible to all the rest. In this way, a data bank has been created, with around 10 million documents and technical

descriptions at its disposal.<sup>7</sup> Information obtained from various centers in the world, as well as various publications, including Soviet ones, is also stored in this bank.

The technological and consultation centers are distributed according to the regional principle to simplify the process of transmission by means of direct contacts between clients and specialists. The network also includes a center (COSMIC), which performs, in addition to informational functions, work connected with the transmission of computer programs and the documents for them. This center has been operating at Georgia State University since 1966. It now has approximately 2,000 programs with the appropriate documentation.<sup>8</sup> When we discuss the activities of technological centers, we should note the projected changes in the forms of their work. They will move from purely informational functions to various forms of cooperation with state governments, aimed at the resolution of specific local problems. The new forms of operation were first tested in Illinois and took the form of participation by NASA researchers in the resolution of local energy problems within the framework of the state government's energy policy.<sup>9</sup> The success of these initial experiments motivated NASA administrators to open two technological centers (in Kentucky and Florida) in 1977 and 1978 to work exclusively on the resolution of local problems in conjunction with state governments.

Another new aspect of the work in this field is the work with the Small Business Administration, the purpose of which is to inform small firms about individual NASA technical achievements. This side of NASA's activity is more in the nature of advertising. Only 192 small firms were selected out of more than 300,000. The information transmitted to the firms, along with technical assistance and consultations, increased the total annual income of these firms by 1 million dollars. Another area of work with small enterprises is also essentially of an advertising nature: Jet propulsion laboratory specialists, working in conjunction with the University of South Carolina, selected a group of 10 businessmen to determine the problems concerning them and the possibility of solving these problems with the aid of NASA's technical achievements.

As examples of achievements in this field, NASA specialists cite the introduction of thermal pipe at enterprises of the small Chemics firm (North Andover, Massachusetts), engaged in the manufacture of equipment for the chemical industry,<sup>10</sup> and the precision semiconductive temperature gages with digital read-out at enterprises of a small New York firm.

An important aspect of the dissemination of information is the organization of publications. The annual number of requests for information submitted to various NASA technological centers could serve as a criterion of the popularity of this part of the program. In the very beginning, this aspect of the program developed with intermittent success, but after NASA began to publish its quarterly reference journal TECH BRIEF in 1976, the number of requests began to rise quickly and reached 100,000 by 1977. The number of subscribers to the magazine also rose continuously and has now reached 36,000.



In 1967, a second part of the program began to be developed: work with other federal institutions on the resolution of specific applied problems arising in the public sector of the economy. During the first stage, the administrators of the program tried to arouse direct interest in the structures and technology developed in the space industry. It soon became obvious, however, that the transmission of achievements to the government sector could be most successfully accomplished if some effort were made to adapt existing technology to the needs of the client. For this reason, in 1972 NASA working in conjunction with several federal agencies and departments, began to draw up special plans for the satisfaction of the needs of "non-space" branches of the economy with space equipment. This aspect of NASA activity began with the determination of problems which, on the one hand, were of considerable practical interest and, on the other, could most effectively be solved with the aid of equipment used in the space industry. Groups of specialists in various technical fields are collecting requests reflecting the needs of particular branches of the economy. Prior to 1976, there were groups of this kind, collecting information in the fields of biology, medicine, transportation and fire protection. In 1976, a group specializing in the collection of requests regarding the possible use of NASA equipment in engineering began working in the State of Illinois. Soon another group began to study the possibility of using the achievements of space technology in agriculture.

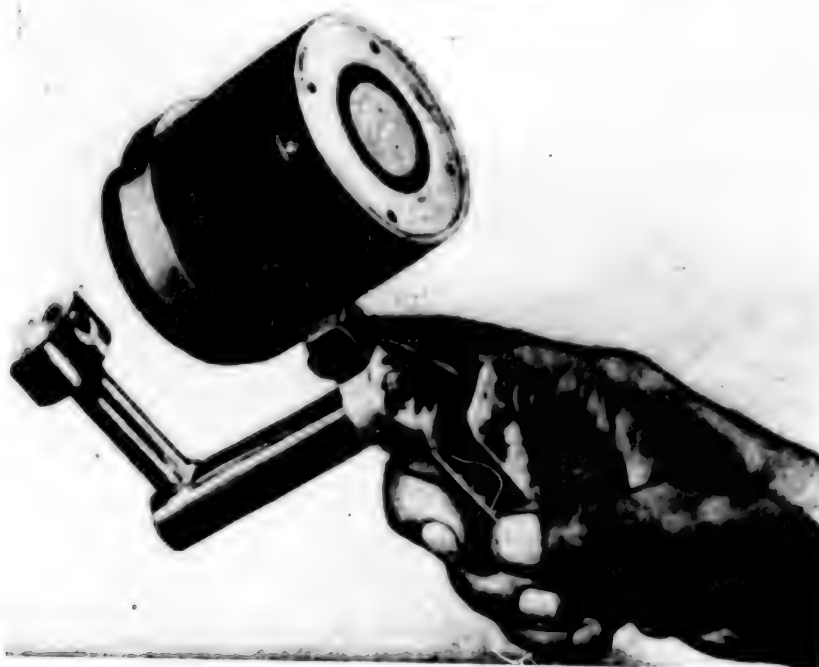


Figure 1. Portable "Lixiscope" X-Ray Unit

Of the hundreds of requests submitted, around 60 were later selected<sup>11</sup> for experimental design work by NASA and concerned departments.

One of the first groups to begin this work consisted of specialists in the fields of biology and medicine. Development projects in this area, conducted by specialists at the Johnson Space Center, with the aid of researchers from the University of Wisconsin and Stanford Medical School, included a surgical instrument for the removal of cataracts, a mass spectrometer for medical purposes, a portable light-weight x-ray unit (the "Lixiscope"), operating on roentgen radiation produced by the disintegration of the radioactive iode isotope, a device for the treatment of joints with limited mobility, etc. With the aid of the experience of NASA specialists, particularly in the prolonged storage of food products, a balanced diet was worked out for the elderly, as well as packaging methods for lengthy product storage. According to one of the initiators of this product, its production will be useful to the elderly and invalids unable to make regular shopping trips.

Another group of specialists from a space technology laboratory, working with the Veterans Administration, developed a system for the telemetric satellite transmission of information on the condition of patients en route to the hospital. The system provides for the continuous recording of the patient's vital signs, including an electrocardiogram, and establishes two-way communications between the hospital and the First Aid vehicle. The widespread use of such systems in the future is expected to necessitate the launching of a special medical satellite.

The existence of a broad potential market is characteristic of these development projects. For example, a study of the market for the portable x-ray unit indicated that the demand for the machine could reach 46,000 units with a price range of 1,500-5,000 dollars each.

Projects in the field of transportation were carried out in conjunction with the Department of Transportation. They include the plans for a high-pressure fire extinguisher for Coast Guard vessels and a unit for the endurance testing of the wheel beds of heavy railway cars.

One of the projects worked on by NASA (Langley Research Center) in conjunction with the Department of Housing and Urban Development and the National Association of Home Builders was the design for a rural dwelling, in which NASA's achievements in the use of solar energy converters were extensively utilized, along with experience in the creation of economical systems of survival and temperature control, allowing for sharp reduction in water use and virtually no consumption of electric power from outside sources. According to the designers, in 20 years the inhabitants of this home could reduce their expenditures on electricity and water by more than 23,000 dollars, while the cost of equipping the dwelling amounts to only 10,000 dollars.

In the 1979 fiscal year, NASA planned more extensive work in the transmission of information and technology to the public sector and proposed to begin working on several new programs, among which special mention should

be made of a unit for the automatic monitoring of welded joints, the development of more effective induction motors and so forth. In the fields of biology and medicine, it plans to develop equipment for monitoring the quality of food products and measuring environmental pollution. More extensive work has been planned in the use of solar energy, particularly the further engineering of systems for the accelerated drying of grain. Cuts in requested allocations, however, have put these plans in question.

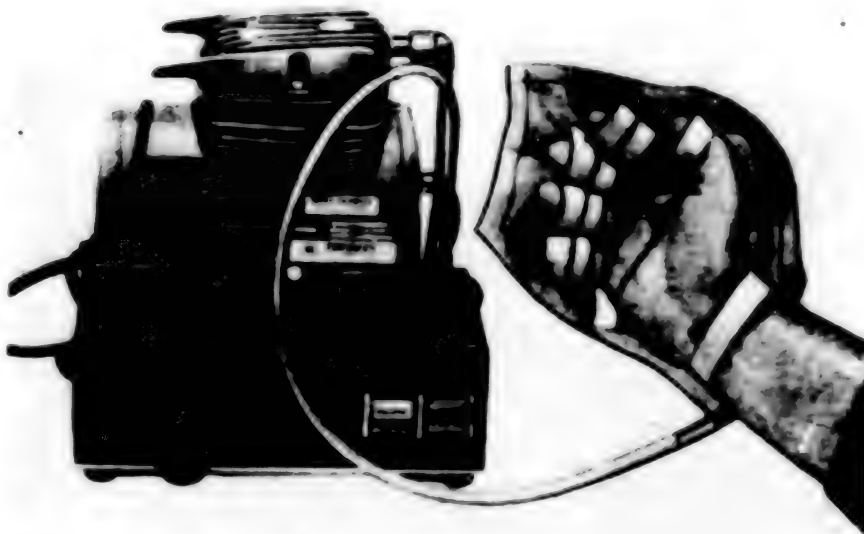


Figure 2. Pneumatic Device for the Treatment of Joints with Limited Mobility

In general, the issue of appropriations for this program is quite pressing. Despite the fact that available data indicate that the implementation of the program on a broader scale could have a significant effect on economic development, primarily by raising the technical level of small enterprises and making the completion of several important projects possible in the areas of public health, fire protection, public transport and so forth, the level of budget allocations for the program is extremely low. The reduction of NASA's extremely modest requests for financing by the Office of Management and Budget (OMB) aroused discontent in the Congress. Tennessee Congressman A. Gore said that he was "extremely disappointed by the cut in funds for the program." In reference to the fact that the cut in allocations would affect new facets of the program, particularly the transmission of achievements to the agricultural sphere, Gore said: "In doing this, the OMB has deprived the American farmers of an opportunity to make use of the results of the progress in astronautics."<sup>12</sup>

In recent years, the program budget has stayed at around 8-9.1 million dollars a year (only 0.2 percent of the NASA budget). Of these allocations, around 42-43 percent will be used in the private sector, and 45-48 percent in the public sector. The rest will be used to evaluate the effectiveness of the program.

The evaluation of the effectiveness of the program is accomplished by means of the statistical processing of data obtained through contacts with individual clients and the study of their profits. The criterion of "cost-effectiveness" and statistically processed data on the income derived by clients from the use of information obtained from NASA are used as criteria for evaluating this effectiveness. It is obvious that the application of "cost-effectiveness" to publications related to the program, despite all of its tangibility, is only an indirect indicator, attesting to the demand for NASA information product, while the second indicator attests to the actual scope of the program and its potential value in the national economy. The value of the "cost-effectiveness" correlation for program publications reaches 1:11. As for the income derived by clients as a result of the use of NASA information, the estimates of the Matematika firm indicated that it reached 245 million dollars between 1970 and 1976, while total expenditures on the program amounted to 59 million dollars during the same period, and this means that the average "cost-effectiveness" correlation for the program is slightly higher than 1:4. It should be borne in mind that this figure measures only the impact of activity confined to the framework of the specific program. The total impact of all NASA results incorporated in civilian branches of the U.S. economy is much greater. According to the estimates of the New York firm of Chase Econometrics, based on the use of a mathematical model of the U.S. economy, the ratio of total impact can rise as high as 1:14.

Nonetheless, despite the fact that no one doubts the potential of the program, its development has been extremely slow and its achievements in the 17 years of its existence have been quite modest. As L. Mogavero, head of the program, recently admitted, "the process of introducing the achievements of space technology into the economic mainstream is not understood clearly enough as yet, and no method has been found as yet for accomplishing this in line with the requirements of the time and rates of technical progress."<sup>13</sup> Evidently, an important role in this process is played by restrictions connected with the guarding of Pentagon secrets and various interdepartmental barriers. The main reason, however, is obviously the fact that, while it is spending huge and constantly growing sums on the arms race, the U.S. Administration is keeping allocations for the transmission program on virtually the same level, which means the actual reduction of funds under the conditions of continuous inflation. The scale of priorities in the U.S. space program quite clearly assigns first place to developments which will benefit the military-industrial complex the most. This means that the interests of the national economy as a whole must be assigned a back seat.

#### FOOTNOTES

1. "1979 NASA Authorization. Hearings Before the Subcommittee on Space, Science and Applications of the Committee on Science and Technology," House of Representatives, February 1, 2, 7; vol I, pt 2, Wash., 1978, p 1751.
2. "NASA Authorization for FY 1979," Hearings Before the Subcommittee on Science, Technology and Space of the Committee on Commerce, Science and Transportation, U.S. Senate, March 1, 7; 1978, Wash., 1978, p 573.
3. AVIATION WEEK, 29 May 1978, p 29.
4. Ibid., 26 June 1978, p 13.
5. "NASA Authorization for FY 1979," p 662.
6. "NASA Authorization for FY 1978," Hearings Before the Subcommittee on Science, Technology and Space of the Committee on Commerce, Science and Transportation, U.S. Senate, February 25; pt 2, 1977, p 1087.
7. Ibid., p 1076.
8. Ibid., p 1062.
9. Ibid., p 1065.
10. "NASA Authorization for FY 1979," p 559.
11. "NASA Authorization for FY 1978," p 1077.
12. "1979 NASA Authorization," pp 1752-1753.
13. Ibid., p 1694.

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## BOOK REVIEWS

### Report by East-West Accord Committee

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 107-109

[Review by Yu. P. Babich of the book "Detente or Debacle. Common Sense in U.S.-Soviet Relations," Edited for the American Committee on East-West Accord and with an Introduction by Fred Warner Neal, Foreword by J. W. Fulbright, New York, W. W. Norton and Company, 1979, XIV + 108 pages]

[Text] In the heated ideological and political battle taking place in the United States over problems in Soviet-American relations, the central position is still occupied by the question of the essence and prospects of detente. This question is acquiring particular significance at present, now the voice of those who regard detente as the only reasonable and only acceptable course in the relations between the two great powers is becoming increasingly loud and confident against the background of the continuous propaganda campaign against detente, which is being conducted by the supporters of the cold war policy and which has found a certain degree of support among some representatives of the current Washington administration.

The publication of a collection of articles on various aspects of detente, written by prominent American political and public figures, scientists and representatives of the business community, seems extremely important and timely. Nine of the eleven authors included in the collection (with the exception of former Senator W. Fulbright, who was head of the Senate Foreign Relations Committee from 1959 to 1974, and Congressman L. Aspin, member of the House Committee on the Armed Services) are members of the American Committee on East-West Accord—an influential public organization founded in 1974.

As W. Fulbright stresses in the foreword, the authors included in the collection, despite differences in their political views, "are united in their conviction that business relations based on common sense with the Soviet Union are not only vitally important from the standpoint of our national interest, but are also completely attainable" (p XIV).

Expressing the common view of the authors, W. Fulbright states that the problem of relations with the USSR is "the most complex and most important problem the American people will be facing throughout the entire next decade" (p IX), primarily because of the current unprecedented scales of the arms race, including the race for nuclear arms, and the consequent danger of worldwide thermonuclear catastrophe.

It is precisely for this reason, says Professor F. Neal, head of the International Relations Department of Claremont College (California) and executive vice-director of the American Committee on East-West Accord, that the vigorous steps taken in recent years to put an end to the cold war and build up Soviet-American relations on a more constructive basis have been a particularly reassuring factor since the end of World War II. At the same time, F. Neal notes that detente was fiercely resisted by powerful and well-organized forces in the United States from the very beginning. What was the reason for this? It was the fact, Professor Neal states, that the cold war had become something of a way of life in the United States. "A group of influential persons and whole organizations were intimately connected with it by various ties--political, financial, intellectual and emotional" (p XI).

But what is detente, according to the authors of these articles? What does it represent to them?

The answer can be found in the articles by prominent American diplomat and historian G. Kennan, who was once the U.S. ambassador to the USSR; Professor S. Peyser, former State Department adviser; S. Cohen, director of Princeton University's Institute of Russian Studies; and other authors included in this collection. They believe that detente, as it applies to Soviet-American relations, primarily means overcoming the burdensome legacy of the cold war by seeking ways of alleviating the tension in the relations between the two states, reducing the level of military confrontation and diminishing the threat of thermonuclear world war. One of the main goals of detente is the achievement of "balanced, businesslike and realistic interrelations" with the USSR and the creation of an "atmosphere of mutual trust and cooperation" in these relations (p XXXI). In their opinion, this would make it possible to settle all disagreements and disputes in a businesslike manner, through negotiation, and would raise the level of mutual trust. Detente, in their opinion, also signifies a desire to set up the rules for "constructive coexistence" by the two states and to establish and develop "broader forms of cooperation" between the two states in the most diverse fields, since both sides "could gain much from broader contact, and each side has something to learn from the other" (p VII).

At the same time, the policy of detente, according to the authors of these articles, should be "completely consistent with existing reality" and be "free of excessive expectations." Detente, in their opinion, should be developed with a view to the differences in the social systems of both states. The competition between them will continue in the most diverse areas, including the sphere of ideology. But it is essential that this competition be

kept within "reasonable limits"--that is, it should only take peaceful forms. Besides this, detente does not signify the refusal to defend the vitally important national interests of either side. In addition, it does not authorize intervention in one another's internal affairs. It also does not and cannot signify some kind of "reward system" for "good behavior" and should not be a "political bargaining item."

On the whole, this concept of detente seems quite reasonable and realistic under present conditions.

A great deal of space in the book is devoted to a contemporary issue of great urgency--the need to stop the race for arms--both nuclear and conventional.

Harvard University economics Professor and prominent American scholar J. Galbraith, for example, stresses that the arms race unavoidably creates the danger of nuclear conflict. From the economic, scientific and technical standpoints, Galbraith feels, the arms race "is a trap, because the appearance of any kind of technical novelty in the munitions field of one side forces the other side to respond with an identical or superior novelty and allocate the necessary funds for this" (p 46). In his opinion, the only way out of this "trap" is to negotiate the cessation of the arms race. But this will not be easy to do, because the "economic interest" of powerful industrial groups, which are closely interconnected with the U.S. public administration system, in weapons production constitutes an extremely serious obstacle to the resolution of this problem.

The article by the Democratic congressman from Wisconsin, L. Aspin, member of the House Arms Services Committee, debunks one of the most popular myths used in the West to justify the arms race--the myth about the notorious "Soviet military threat." The author cites concrete facts to demonstrate the unscrupulous methods resorted to in the United States for the purpose of "corroborating" this myth, as well as the lies about the USSR's alleged desire to achieve "military supremacy" over the Western nations.

In their articles, honored Harvard University chemistry Professor G. Kistiakowsky, one of the creators of the American nuclear bomb, and Professor S. Drell, associate director of Stanford University's Linear Accelerator Center, stress the importance of the strategic arms limitation talks (SALT) for Soviet-American relations and for the entire process of detente. The final goal of these talks, G. Kistiakowsky feels, "should be the liquidation of all nuclear stockpiles" (p 70). After thoroughly analyzing the rumors spread by the opponents of detente about the goals of SALT, both scientists denounce them as fabrications with no basis and oppose any attempt to make SALT "conditional" upon other issues in Soviet-American relations that are not directly connected with SALT.

"One of the chief elements of the policy of detente" is what D. Kendall, chairman of the board of Pepsico, Inc. and co-chairman of the American-Soviet Trade and Economic Council, calls commercial ties between the two

countries. "I am deeply convinced," he states, "that the expansion of the scales of Soviet-American trade will not create any kind of threat for our economic system or for the defense of America; on the contrary, it would raise the odds in favor of world peace and guarantee considerable commercial benefits" (p 39). Trade with the USSR, in Kendall's opinion, is also to the U.S. benefit for purely economic reasons, as it can solve the problem of employment to some extent, have a favorable effect on the U.S. balance of payments and give American firms access to the large and stable Soviet market. In his opinion, the United States "displayed its nearsightedness" when Congress made the "tragic decision" in 1974 in regard to the Jackson-Vanik amendment and other discriminatory legislation in the area of trade. Kendall quite definitely objects to the practice of "linking" problems in the development of trade and economic cooperation between the two countries with other unrelated problems, and he condemns those who are striving to use trade as a means of exerting political pressure on the United States. His view is shared by J. Galbraith, S. Peysar and S. Cohen.

The negative effect of this kind of "linkage" in Soviet-American relations, particularly in connection with the current Washington Administration's campaign "in defense of human rights" in the USSR, is also pointed out by Harvard University sociology Professor D. Riesman. He decisively condemns this campaign as a dangerous action that is severely harming the cause of detente. Riesman cautions restraint in the approach to this issue because he believes that it is of lesser importance than such problems as the need to limit the race for nuclear weapons and eradicate the threat of thermo-nuclear world war.

The authors of the articles in this work do not conceal their apprehensions regarding Washington policy in recent years, which has given rise to serious difficulties in the development of the process of detente. For example, F. Neal stresses that the Carter Administration "has placed emphasis on elements of competition" in the relations between the two countries and, until recently, had "done little or nothing to reinforce elements of cooperation" with the USSR.

Pointing out the fact that detente in Soviet-American relations is now undergoing a critical stage, the authors of the collection stress that a realistic and acceptable alternative to detente simply does not exist. In their opinion, current difficulties can only be overcome by means of new initiatives on the part of the United States, which would give the process of detente new impetus.

Naturally, we cannot agree with all of the opinions of these authors. All of them, some to a greater degree than others, are still trapped by theories cultivated by American "Sovietologists" for decades. This naturally does not permit them to take an unprejudiced look at Soviet reality, at the very nature of the Soviet socialist society and at the roots of Soviet foreign policy.



Nonetheless, we naturally sympathize with the concern of all these authors regarding the present state of Soviet-American relations and the future process of international detente as a whole. Their opinions indisputably reflect the opinions of the overwhelming majority of Americans, who unequivocally favor the policy of detente. This voice, the voice of common sense, must eventually prevail. This would be totally and completely consistent with the fundamental interests of the USSR and the United States and the interests of the entire world.

#### Job Programs

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 109-112

[Review by V. S. Vasil'yev of the book "Creating Jobs: Public Employment Programs and Wage Subsidies," Edited by John L. Palmer, Washington, The Brookings Institution, 1978, 379 pages]

[Text] Signs of crisis in the American economy became dramatically more pronounced in the 1970's. They were most vividly reflected in the highest rates of inflation and unemployment in all of postwar U. S. history. American economists made a massive effort to determine the circumstances and causes giving rise to the galloping inflation and mass unemployment and searched for ways of eradicating them. The work being reviewed is one of the studies in which the possibility of reducing the rate of unemployment was investigated. It was published by the Brookings Institution in conjunction with the Institute for the Study of Poverty. The work is a collection of articles written by prominent American economists--J. Tobin, I. Garfinkel, J. Johnson, R. Haveman, J. Kesselman and others--on the basis of the papers of a conference held in the spring of 1977 under the auspices of the two U.S. research centers.

One of the salient features of the crisis upheavals of the 1970's in the American economy is the fact that the high rate of unemployment has been accompanied by a high rate of inflation. This is a new trend and it is precisely this that served as a point of departure for all of the analytical constructions of these authors. As Yale University economists M. Bailey and J. Tobin point out, the central problem in the administration's economic policy is that unemployment and inflation must simultaneously be reduced as far as possible (p 43). The current objective is to reduce unemployment to 6 percent (this figure is now regarded by American economists as the maximum unemployment ceiling in a "full employment" economy) without any significant escalation of inflationary processes.

Under these conditions, as I. Garfinkel, director of the Poverty Studies Institute, and J. Palmer, leading Brookings Institution researcher, point out, the federal government's "selective policy," which is contributing to the immediate creation of jobs, appears to be a promising means of attaining these two interrelated goals--reaching and maintaining a low level of unemployment without excessive inflationary pressure and guaranteeing a minimum



income level for working family members (p 1). The authors note that purposeful government measures to stimulate employment are a relatively new element of U.S. economic policy, characteristic primarily of the 1970's. They arose as a result of the inefficiency of traditional means of reducing unemployment without a simultaneous rise in prices--the government's taxation and credit policies--and as a result of the failure of the income distribution policy and the labor market regulation policy conducted in the United States in the 1960's and early 1970's.

The income distribution policy consisted primarily of Federal price and wage controls, which were in effect in the United States throughout the 1971-1974 period; this policy was extremely unpopular and, as the authors note, the current income distribution policy in the United States is being strongly opposed by business circles and labor unions (p 44). The labor market regulation policy came into being and was actively implemented in the United States in the 1960's; it consisted mainly in the improvement of systems providing information on the state of the labor market and the institution of government programs for the retraining of manpower and programs for the economic development of certain regions and urban neighborhoods suffering from high unemployment, poverty and a low level of socioeconomic development. According to M. Bailey and J. Tobin, the model for the labor market regulation policy was Sweden, where this policy first originated and where it produced tangible results; however, "for various reasons, the policy of labor regulation conducted in the United States in the 1960's was a failure," the authors state (p 44).

At present, there are two types of programs for the creation of jobs: government employment programs--that is, the creation of jobs by state and local governments; and programs which allocate wage subsidies to private capitalist firms, which, at their own discretion, can use them either to create new jobs or to increase the wages of their current personnel staff. In 1978 the United States spent approximately 7 billion dollars on the creation of government jobs; total expenditures for the stimulation of employment by means of the direct creation of jobs are expected to increase in the future.

The ineffectiveness of state-monopolistic labor market regulation has had a significant effect on the American economists' conclusions concerning the efficacy of government employment and salary increase programs. The majority of the American economists who attended the conference arrived at the conclusion that government employment programs, just as wage subsidy programs, have both good and bad features in connection with the resolution of problems in the structure of employment. "Until more information has been collected on their functioning," the authors state, "the limits of their possible application in the economy for the effective resolution of problems will remain largely uncertain" (p 42).

This conclusion is based on a summarization of the experience with existing government programs for the creation of jobs. According to the current practice, state and local governments are allocated funds which can be used to hire necessary manpower. In connection with this, University of Michigan

economics Professor J. Johnson writes that "the public employment factor on the state and local government level has maximum capacity in terms of qualifications--more capacity than any other branch of the American economy" (p 124).

According to his calculations, individuals with a partial secondary education made up an average of 30 percent of all those covered by government employment programs in the 1970's, persons with a high school diploma made up 41 percent of the total, and those with a partial or complete higher education represented 29 percent. The personnel carrying out government employment programs are inclined to give jobs to workers who are sufficiently qualified and who, in J. Johnson's opinion, would probable have found jobs on their own sooner or later; at the same time, semiskilled workers are not offered jobs. It is a well-known fact that semiskilled blue- and white-collar workers, with youth, women and ethnic minorities making up a considerable percentage of this group, represent the backbone of the army of unemployed in the United States. Therefore, J. Johnson concludes, "expansion of the scales of employment in the public sector on the state and local government level is the same as offering subsidies to skilled categories of laborers more readily than to semiskilled workers, and this has a negative effect on manufacturing volumes, employment and income distribution" (p 124).

Nonetheless, economist D. Hamermesh calls the wage subsidy system a more effective means of increasing employment in the private capitalist economy, since these subsidies are now paid mainly on the basis of the minimum wage or a salary level close to the minimum--that is, they extend to the semiskilled labor force. The administration of a wage subsidy program is also less costly in comparison to a government program for the creation of jobs, since private capitalist firms already have subdivisions at their disposal which can take care of interrelations with personnel. In the case of government employment programs, subdivisions of this kind must be created or improved. Even under the conditions of periods of economic recovery, however, private capitalist firms are not always motivated enough to hire new manpower; besides this, as D. Hamermesh writes, employees in government subsidized positions are regarded as "nonessential" by management, and this can complicate the future professional growth and advancement of this category of workers within the particular firm or enterprise.

The authors of this collection of articles conclude that regardless of forms of implementation, many programs for the stimulation of employment are less likely to reduce unemployment than to redistribute it from low-paid worker categories to high-paid labor--that is, the same or slightly lower rates of unemployment with more skilled blue- and white-collar workers and less semiskilled labor. This is not so much a way of reducing unemployment as of alleviating its socioeconomic consequences, primarily through the agencies of the workers themselves. In these articles, many American economists mention the mandatory and economically unjustified nature of government programs for the stimulation of employment.

The rising level of unemployment in the mid-1970's dramatically increased expenditures on unemployment compensation; for this reason, many conservative politicians, realizing that the federal government would have to spend considerable funds on social assistance for the unemployed, advocated increased expenditures on the relatively ineffective (from the standpoint of the production of goods and services) programs for the stimulation of employment rather than the expansion of social assistance for the unemployed and the poorest Americans with no tangible "return" from this quarter.

These studies by American economists, based on the investigation of extensive factual material, sheds light on some aspects of one of the most serious problems in the United States--the present situation in the labor market--and provides some idea of the existing contradictions in this sphere of state-monopolistic regulation in the United States.

#### Autobiographical Work by Theodore White

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 112-115

[Review by V. M. Berezhkov of the book "In Search of History" by Theodore H. White, New York, Harper and Row, 1978, 561 pages]

[Text] Among this season's bestsellers, Theodore White's new book "In Search of History" has caught the attention of readers interested in international affairs. This unique work combines the autobiographical element with a narration of past events witnessed and chronicled by the author. Each chapter is prefaced with an introduction giving the historical background of the events that transpired.

Theodore White is well known in the Soviet Union. The older generation remembers his book "Thunder Out of China," which was translated into Russian and published in our country soon after the end of World War II. The readers of our magazine also know White from the chapters we have printed from his series of books called "The Making of the President." In these and other works, White has displayed his talent as a reporter. In his new book, he is an autobiographer, presenting an entertaining discussion of his childhood, youth and the first stages of his career as a journalist.

The first half of the book is the most interesting part. It begins with a description of the miserable and anxiety-ridden life of a poor immigrant family from Pinsk in a Boston ghetto, where Theodore White was born in 1915. He was not even 15 years old yet when economic crisis seized America and completely ruined the inhabitants of the ghetto. White remembers that "there was literally no money for food, no money to pay the rent, no money for clothes" (p 18). His elders told him: "A poor man is a cripple, a rich man is free. Only a man with money can afford to have an opinion" (p 19). Later, White encountered a situation which showed him that only an extremely rich man could afford to have his own opinion under the conditions of bourgeois democracy. At that time, however, seeing the unrelieved

poverty surrounding him, he decided that he had to study and acquire knowledge to "rise to the surface."

After the death of his father, a man broken by poverty and humiliations, all of the burden of caring for the children was passed on to Theodore's mother. Her energy and industry and a favorable set of circumstances eventually made it possible for Theodore to enroll in prestigious Harvard University. His dream had come true, and White makes no secret of the fact that he went to Harvard "not to help the working classes, but to get out of the working classes" (p 44).

This was the credo of many of the "lucky ones" who managed to move up from the back seats of overseas democracy. Knowing from his own experience about the pitiful fate of the underprivileged, he nonetheless did not make any attempt to join the active fight against injustice. The social structure of the United States is made up of totally separate spheres, each of which appears to exist independently. Many of those who have been able to move from the lowest strata to higher ones wish only to stay on the new level or, if possible, rise even higher. Those who remain on the bottom are supposed to blame themselves for their inability to "rise to the surface." These are the rules of the game of "private enterprise" and "private initiative."

White is now a man, so to speak, with status. But prior to achieving this, he had to go through a number of humiliating and unpleasant experiences. He tells about them in his book which could quite justifiably be subtitled "The Fate of a Reporter in America" and in which the author himself would seem to symbolize the fact that even an extremely talented journalist and writer, and a completely loyal one at that, who repeatedly demonstrated this loyalty to his government, now and then encounters a situation in which he must either bend to the will of his "boss" or take the risk of being thrown out. This is still true today. Recently, one prominent American journalist made the following comment: "For me, my publisher is the most important man in the country. His word is law." This was said half-jokingly, but behind the irony lay the absolute truth.

White first became famous in America when he sent back reports from China, which was then fighting against the aggression of the Japanese militarists. White went to Asia at his own risk and soon became one of the leading reporters of the influential weekly TIME. But this did not protect him from the arbitrary rule of the publisher and owner of the magazine, multi-millionaire Henry Luce. Their first "tiff" occurred when Luce arrived in Chongqing--then the seat of the Guomindang Government. Luce came from a family of American missionaries, had lived in China for many years and had his own ideas about conditions in this country. He did not like White's criticizing remarks about the corruption and incompetence of the Chiang Kai-shek regime, which was not so much fighting against the Japanese as it was planning bloody reprisals for progressive force in the Chinese population. At that time, Luce told White: "Teddy, you must have read all of this stuff in business magazines about how the boss' door is always open to everyone? Well, that is not the way I run my magazines. Everybody's door



is open to me. But my door is open to people only when I want to see them" (p 129). The self-assured boss also issued another instruction: His, Luce's, ideas were the ideas his staff had to have.

These were the conditions on which White was invited by Luce to become TIME's editor on Far East affairs. When he returned to New York, White was not excessively disturbed at first by the rigid limits set for him by his despotic boss. He was pleased with his new job, and even more pleased with the weekends at Luce's country estate, where the mistress of the house introduced the newcomer to all kinds of celebrities: to Rockefellers and members of other wealthy dynasties, to famous writers and to politicians. But White was not fated to remain an editor for long. The Japanese attacked Pearl Harbor, the United States entered the war and White returned to China, this time in the capacity of a special military correspondent of an allied power.

He went to China with a feeling of great enthusiasm, but the end of this mission was far from happy for him. A serious disagreement with Henry Luce began in the spring of 1945, when the war was approaching its end. White saw that the thoroughly decayed Chiang Kai-shek regime was tottering and that it could not be saved. He wrote about this in his magazine articles. Luce, however, who had become one of the main pillars of American reaction by that time, believed that the United States should make every effort to keep the Guomindang regime in power. White's news coverage enraged him. An unprecedented situation took shape: A reporter had dared to go against his boss. White's fate was sealed. He was fired without any hesitation.

White now gives Luce credit for his organizational ability, but he also has several bitter remarks to make about his wilfulness and the arbitrary rules he set for his staff. But after all, this kind of morality essentially still prevails in the American media today. Could this be the reason for the topical significance of White's book and the interest it has aroused in the reading public? Freedom of the press, White writes, ran two ways for Luce: Reporters "were free to report what they wished; but he was free to reject what they reported, or to have it rewritten as he wished" (p 207). White did not want to put up with this, and he was fired. It was then that he displayed his stubbornness and wrote "Thunder Out of China."

It was published in 1946, when the anticommunist hysteria was just beginning to take hold in the United States. It had not encompassed all social strata as yet. The inquisitors from Joseph McCarthy's committee had not yet scared everyone to death. As things turned out, "Thunder Out of China" won recognition, became a bestseller and made White famous and, for some time, financially independent. Soon afterward, however, this success turned into defeat. White was reviled and degraded. His first book, which had brought him so much happiness, was suddenly put on the "subversive" list, and he himself was labeled a "secret communist agent."

White came up against an impermeable wall of hostility. None of the powerful wanted to communicate with him, and all of his requests for work were denied. For a short time, White found a refuge in the NEW REPUBLIC, a progressive



magazine edited by Henry Wallace, former vice-president of the United States (under President Roosevelt). But Wallace's position, his fierce criticism of President Truman for starting the cold war and his support of continued cooperation with the Soviet Union, was not to White's liking. He had no affection for the USSR and he believed, with good reason, that his association with the NEW REPUBLIC could only make his difficult position even worse. After all, he had been called a "communist agent" only on the basis of a pure misunderstanding. White wanted to remove this "stain" from himself as quickly as possible. But this was not such a simple process. He felt it would be best to leave the United States quickly and he went to Western Europe, where the Marshall Plan was just beginning to be carried out.

As an experienced journalist, White naturally must have known the actual purpose of this "plan," which was intended to turn Western Europe, especially West Germany, into a beachhead for future aggression against the USSR and other socialist states. He must also have realized that the Marshall Plan and the McCarthyism within the United States were two sides of the same coin. The objective was to prepare a foreign theater and an American rear for new military ventures. Once again, he chose not to fight against reactionary forces. He settled down in Paris and decided to wait out the hard times.

White recalls how difficult it was for the "free-lance" reporter. "I had not chosen to become a 'free-lance.' I was pushed into it.... I had to market my own writings." He compares himself to a medieval knight without an overlord, who would rent his lance to anyone prepared to pay the fee. These were people "without loyalty, without a home, moving around in search of a fee" (p 353). White took on any subject: He wrote about the Paris fashions, the black market in gold, and French cuisine. Political coverage was not only unlikely to earn sufficient financial compensation, but was even dangerous in general, as it might attract the attention of the old-seeing eye of the Un-American Activities Committee.

He gradually began to look into the Marshall Plan and considered the possibilities for his rehabilitation. White praised this plan to the maximum in his articles, extolling it as a panacea for Western Europe and the entire capitalist world. But McCarthy's agents, who were scouting around Western Europe, were not drowsing either. In West Berlin, they found a copy of "Thunder Out of China" in the library of the U.S. Information Agency. It was immediately confiscated and publicly burned, and the occasion was reported by the NEW YORK TIMES. In this way, White's "unreliability" was loudly confirmed.

Soon afterward, White appeared before the investigators of the Un-American Activities Committee. His younger brother Robert, a scientist working on a project for the U.S. Air Force, lost his "security clearance" and his job because he was a relative of an "unreliable." It was only after a lengthy period of harassment and intervention on his behalf by high-placed officials that Robert was finally vindicated. Theodore, however, in addition to having

written a seditious book, was also being accused of "engaging in subversive activity" with American sappers who were building a road through the jungles of Burma when he was a military correspondent. His passport was taken away. White was desperate: There was no work for him in the United States, but he was not being allowed to return to France. He had to haunt many thresholds before the authorities took pity on him and returned his passport. He hurried to Paris, but the Damoclean sword of McCarthyism was still hanging over his head.

"It was quite obvious," White recalls, "that I would have difficulty going home again, that there would be no job waiting for me." White searched for a solution and eventually decided that "the only real option was to stake everything on one more book, which would explain the American experience in Europe" (p 356). This was to be a panegyric to the Marshall Plan. He saw this as his only chance of returning to the "paradise lost." And it is a fact that the book, which was given the pretentious title "Fire in the Ashes," played its role after its publication in 1953. It was pronounced the best book of the year and, as White puts it, "brought" him home (p 358).

White learned his lesson well: He decided to move away from risky foreign political subject matter and concentrate on domestic problems. Success awaited him in this field. His series of books on "The Making of the President," detailed examinations and analyses of the presidential campaigns of J. Kennedy, L. Johnson and R. Nixon, made White widely renowned. His book on the resignation of President Nixon, which was published in 1975, was thought by many to be less successful. But then "In Search of History," as we have already mentioned, became a literary event.

Although we cannot agree with all of the statements and opinions in White's book, we must nonetheless give him credit for his talent, experience and ability to unravel the tangled knots of intrigue that are typical of the American political scene.

#### Problems in American Area Studies

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
p 115

[Review by V. P. Zolotukhin of the book "Problemy amerikanistiki," Issue No 1, Ed-in-chief N. V. Sivachev, Moscow, Izd-vo Moskovskogo universiteta, 1978, 226 pages]

[Text] The collection entitled "Problemy amerikanistiki" is the first publication compiled by the Moscow State University Scientific Coordinating Council on Problems in American Area Studies. The primary objective of the authors of this collection is to unite the efforts of specialists in related fields of knowledge for the purpose of ensuring the future comprehensive investigation of fundamental issues on an interdisciplinary basis. As a beginning, they propose that several guidelines be set for comprehensive

analysis. The council attaches great significance to contacts with institutes of the USSR Academy of Sciences and other research centers and VUZ's in the nation. The collection being reviewed is expected to play an active role in the coordination of the scientific studies of university experts on American affairs.

The first part of the collection, which contains all of the articles on history and law, includes some works on the ideological roots of the American Constitution of 1787, the isolationism of the 1920's, the labor policy of the government in the 1945-1953 period, the current social activities of the business community and governmental legal regulation of environmental protection. The second part--"Economics and Geography"--is also rich in content. The subjects discussed in this section are the financial mechanism governing the operations of international monopolies, the use of government finances in the interest of monopolistic capital, current population trends and problems, regional aspects of environmental change and pollution in the United States and the social geography of American agriculture. The third part, on philosophy and philology, includes two long articles: One deals with the problems of the "counterculture" and the other discusses critical realism in the postwar American novel.

#### Liberation Struggle of American Blacks

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p 115

[Review by O. Sh. of the book "Revolutionary Tendencies in World Politics and the Struggle of Black Americans" by James Jackson, translated from the English, Moscow, Progress, 1978, 190 pages]

[Text] The work being reviewed, which has been edited and prefaced by historian A. P. Koroleva, is a collection of articles and statements by a prominent American communist on the central issues of the liberation struggle of the black people and the contemporary development of the world revolutionary process; several articles were written expressly for the Russian edition by the author.

Jackson gives a great deal of attention to the role of the Communist Party of the United States of America in the struggle for social progress, democracy and peace. This is the theme of the first part of the book, along with the effect of the example set by the USSR, Great October and the brilliance of Lenin's ideas on all revolutionary and liberation movements. Defending the purity of the communist outlook, J. Jackson refutes the arguments of various types of "critics" and "renovators" of Marxist-Leninist doctrine, from rightist revisionists to "ultra-leftist" extremists of the Maoist persuasion.

The second part of the work discusses the theoretical and practical problems of the black Americans' struggle for their rights, and the ties connecting this struggle with the world revolutionary process. In particular, it is

interesting that J. Jackson disagrees with those who regard the black Americans as a separate nationality, and their struggle as a national liberation movement with the goal of achieving national state sovereignty. The author explains why American communists are fighting against all forms of separatism.

#### Technological Revolution and the Structure of the Labor Force

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[Review by L. T. Dukhovnaya of the book "Nauchno-tekhnicheskaya revolyutsiya i problemy struktury rabochey sily (na materialakh razvitykh kapitalisticheskikh stran)" by N. P. Ivanov, Moscow, Nauka, 1978, 319 pages]

[Text] The book being reviewed contains an analysis of the struggle of the workers for the revision of a system set up long before the technological revolution to classify types and categories of work and the creation of a new system which would reflect qualitative changes in the content of labor. The author examines the role of education in the life of contemporary capitalist society, questions the limits of the social need for education (pp 221-222) and notes the constant rise in the minimum social need for education, which is becoming a significant factor contributing to the rising cost of labor (p 217). The author's analysis of processes in the educational sphere and the use of society's labor resources totally exposes the groundlessness of bourgeois sociologists' theories about the capitalist society as an "equal opportunity society."

The author discusses the methodological problem of the dynamics and factors of change in the cost of commodities and labor in the contemporary capitalist society, which is of great practical significance for the future of millions of workers. The author believes that enhanced labor productivity at a time of technological revolution cannot serve as irrevocable proof of the constant devaluation of labor, since it is now less a result of quantitative increase in production output as of changes in the qualitative characteristics of this output, the acceleration of its depreciation and the increased complexity of labor (pp 14, 25, 150). As a result of this, levels of labor productivity will become purely incommensurable in 15-20 years. It is now absolutely impossible to increase the complexity of labor, instill elements of mental labor into the work process and enhance the "polyvalence" of qualifications without raising the minimum social requirements in the society for education or without an increase in family expenditures on the acquisition of higher levels of education and qualifications than a generation ago. This is how the author explains this seemingly paradoxical phenomenon: The augmentation of labor productivity is accompanied by a rise in the cost of labor, and the rise in this cost is accompanied by heightened exploitation and an increase in total surplus value. This conclusion serves as justification for the struggle of the working class for higher wages and indicators of growth which exceed the level of output, since the latter does not reflect actual changes in the content of labor.



## INDIGENOUS INHABITANTS OF THE CANADIAN NORTH

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pp 117-123

[Article by A. I. Cherkasov]

[Text] The Canadian North is in its second decade of intensive industrial development, intended to put its rich natural resources, primarily its mineral deposits, into economic circulation. These vast and sparsely populated territories (the northern regions which cover more than 60 percent of Canada only contain 1.5 percent of its population) are beginning to play an increasingly perceptible role in national economics. At present, more than two-thirds of all iron ore is mined in Canada, half of the lead, a quarter of the nickel, zinc and silver and a sizable portion of the gold, copper and asbestos. Particularly rapid growth is characteristic of the mining industry of the Far North (the Yukon and Northwest Territories, located North of the 60th parallel), with the value of its product increasing by more than 13-fold between 1965 and 1975. Preparations are also being made here for the exploitation of huge oil and gas deposits--enterprises on a scale surpassing all other types of economic activity in the North combined.

Ever since the North began to play a more significant role in Canada's economic life, it has also gained importance in political life. In recent years, "problems of the North" have been discussed with increasing frequency in the Canadian press and scientific literature. The fact is that in their "northward move," the Canadian economy and the Canadian bourgeois society as a whole have encountered several serious problems--economic and social problems, problems that are specifically "northern" and problems that are common throughout Canada but are becoming particularly urgent and acute here, in the regions of new development. One such problem that has become noticeably more urgent in recent years in the Canadian North is the status of its native population under the conditions of rapid change in the nature and structure of the local economy and the intensive inclusion of native inhabitants in an unfamiliar system of production relations.

Native Indians and Eskimos make up approximately 20 percent of the population of the Canadian North, where 97 percent of all the Eskimos (around 20,000) and more than 20 percent of all the Indians (over 60,000) in the



nation live. The percentage accounted for by indigenous groups in the population (no more than 1.5 percent in developed regions of Canada) rises dramatically as it moves northward, reaching 53.4 percent in Northwest Territories and exceeding 80 percent in the northernmost District of Franklin, which takes in the islands of the Arctic Ocean.

Various groups of Eskimos (by convention, they are called "Inuits" in Canadian literature and the press, particularly in French-language materials) live on the coastline and islands of the Arctic Ocean and in the tundra portion of the Northwest Territories and Labrador peninsula (65 percent of them, according to the 1971 census, were in the Northwest Territories, 21.4 percent were in Northern Quebec and 6 percent were in Newfoundland's coast of Labrador). The entire eastern portion of the taiga zone from Manitoba to the Atlantic is inhabited by the Algonquin Indians (Cree and others, around 35,000), and the western half of the taiga zone is inhabited by Athabaskan Indians (called the "Dene people," around 25,000); Tlingit Indians live near the Pacific coast (500). Around half of the Indian population has now completely made the transition to the English or French (in Quebec) languages; the overwhelming majority of the Eskimos have kept their native language (a number of related dialects) and have their own syllabic system of writing. Besides this, a considerable percentage of the population of the North (estimated at up to 10 percent) is made up of so-called Metises, a category which covers "genuine" Indian-European Metises and "non-status Indians."<sup>1</sup>

In spite of the constant flow of new settlers, the proportion accounted for by natives among inhabitants of the North has not only failed to decrease in the last two decades, but has even displayed a tendency toward increase in many regions due to an extremely high rate of natural population growth (3 or 4 times the national average in 1970-1975).

#### Decline of Traditional Trades

The bases of the traditional economy of the North's native population--hunting for marine animals and wild caribou, fishing and the fur trade--were already being undermined in the first half of this century by the competition between local hunters and whalers and the predatory extermination of wild game. In the last decade a new danger became apparent--the pollution of the North's environment and the disruption of its fragile ecological balance as a result of the industrial development of the North. Intensive geological prospecting (particularly for oil and gas) on traditional hunting grounds, the construction of transport arteries, disrupting the migration patterns of the caribou, and the increase in sea and river navigation have resulted in the almost total disappearance of game and are dooming the local inhabitants to a life of poverty. For example, in 10 years (1963-1973), the bag of blue fox, muskrat and marten decreased to less than one-third of the previous quantity in the Far North, the beaver trade decreased by half, and the catch of mink and the main fur-bearing animal--seal--decreased by a third (at the same time, the price of seal skins fell to less than one-third of the previous level). The total value of the fur catch for the year decreased from 1.9 million dollars to 1.4 million<sup>2</sup>--and this was at a time of a considerable rise in the price of tools of the trade and a rise in the cost of living in general.

The situation is being complicated by two important factors: In the first place, the native population of the North did not have any legally recorded territorial rights until recently<sup>3</sup> and, consequently, no right to compensation for damages to their economy, not to mention no possibility of preventing damages of this kind. In the second place, the transport and industrial development of the territories and the prospecting for oil and other minerals are now being conducted most intensively precisely in the regions with the highest concentration of natives in the population--the valley and delta of the Mackenzie River, the basin of Great Slave Lake, the west coast of James Bay and the shelf of the Beaufort Sea, which was once so rich in marine animals.

As a result of the disruption of the traditional economy and the as yet negligible involvement of the native inhabitants of the North in contemporary economic activity, the nature of migration patterns in the North as a whole does not correspond to the higher intensity of economic life in its various regions. Whereas the native population of the North was once more or less equally distributed throughout this territory and its density corresponded to the "productivity" of specific areas, the 1960's and 1970's were a time of rapid concentration of the native inhabitants in a few centers (essentially "urban"), where they hoped to find jobs or collect welfare from public agencies. Therefore, vast expanses of tundra in the Northwest Territories<sup>4</sup> and entire districts (for example, the northern coast of Labrador, where deserted settlements such as Hebron, Nutak and others are still designated on maps as populated points)<sup>5</sup> are already uninhabited. The flow of skilled labor from the South to the centers of the mining industry in the North and the high natural rate of increase in the native population are increasing the total number of inhabitants here, and this creates the statistical illusion that the North is being "settled." In fact, however, the mechanical depopulation of vast regions is characteristic of most of the North.

#### Problem of Employment and the 'New Way of Life'

The absolute number of native inhabitants continues to rise due to the high rate of natural population growth, and the problem of native employment becomes more acute with each year. The attempts the government has made ever since the 1930's to establish a reindeer-breeding industry in the Far North have been unsuccessful (by the 1970's the entire herd of domestic reindeer decreased to 5,000-7,000 head, and in some years the figure dropped as low as 3,000) because the native population lacks the necessary skills.<sup>6</sup> Government subsidies have actually become the main source of "income" for the majority of Indians and Eskimos who have tried to preserve their traditional way of life. For example, the inhabitants of the George River settlement (Northern Quebec) are completely dependent on these subsidies because their hunting grounds are depleted.<sup>7</sup> A study conducted in 1975 in five settlements of Baffin Island showed that only 37 percent of the men here between the ages of 19 and 45 have permanent jobs. In all, according to various estimates, from 35 to 80 percent of the native inhabitants of the North had no jobs in 1977.<sup>8</sup>

The need to include the North's indigenous population in new and contemporary branches of the economy (construction and mining) was already apparent in the 1970's. This could have solved the problem of native employment and the problem of the labor shortage and extremely high rate of personnel turnover (it could also have reduced the cost of labor--after all, the natives of the North are usually not paid "northern" wage differentials). The federal government has recommended that companies engaged in the development of the North organize professional training courses for local inhabitants, and has extended loans for the construction of residences to Indians and Eskimos who wish to move to a new place of residence with better job opportunities. But the recruitment of natives for paying jobs has come up against several difficulties: their lack of the necessary qualifications and the ability to "work according to schedule,"<sup>9</sup> the need for the territorial regrouping of the native population, and the substantial psychological reorientation required of the former hunter who has become a worker--and this reorientation frequently results in a state of chronic stress.

This stress, aggravated by the constant sense of personal instability in a system of alien production relations and moral values, often results in the rapid social degradation of the "rootless" Indians and Eskimos, and this takes the form, in particular, of widespread alcoholism. In just 4 years (1967-1971), total alcohol sales in the Northwest Territories increased more than 1.5-fold; per capita expenditures on alcoholic beverages rose from 109 dollars a year to 169 dollars during this time.<sup>10</sup> This is also related to the extremely high rate of crime in the Far North: In 1970 there were 325 crimes per thousand inhabitants over the age of 7 (compared to a nationwide average of 85).<sup>11</sup> English researcher H. Brody remarks: "The latest trends in the development of the North are pushing the native population onto the lowest and most shaky rung of the class ladder. After being deprived of its own means of production without being given any sufficiently reliable connection with the production system imported from outside, the Eskimo--just as the Indian in the past--becomes a migrant worker, day-laborer or lumpenproletarian and, as these conditions develop, a petty thief, beggar or prostitute. This problem cannot be solved with high wages in the mining industry: Short-lived booms, which are so characteristic of regions of new development, can only make the situation worse after they have run their course."<sup>12</sup>

A substantial role in the moral degradation of the North's indigenous population is also played by the corrupting influence of the contemporary Western bourgeois culture, with which this population becomes acquainted mainly through television (and in its cheapest and most inferior form at that). This influence is particularly pernicious in its effect on women and children.<sup>13</sup>

In September 1977, representatives of Eskimo social organizations asked the government for control over the content of special television programs for the North (broadcasted by CBC through the Anic communications satellite). They complained that the widely advertised Eskimo-language programs were only on television for 30 minutes a week (out of 112 viewing hours) and that entertainment programs were too violent. "We do not want to constantly see white people killing each other,"<sup>14</sup> representatives of the Eskimos declared. In a

similar move, more than 90 percent of the adult population of the settlement of Arctic Bay objected, in a 1974 survey, to the opening of bars and the sale of alcoholic beverages in their settlement, which was close to the site where a new mine was to be constructed.<sup>15</sup>

Moreover, the pernicious effects of introducing the natives of the North to bourgeois "civilization" are manifested indirectly as well as directly. For example, several researchers have noted that the formal approach of government officials to the organization of public education for the indigenous population of the North, the absence of special textbooks and curricula and so forth are causing the educational system to diverge from the actual requirements of the "northern way of life," and this, in turn, will lead to the creation of a "generation of educated unemployed."<sup>16</sup>

Therefore, the line of encouraging the native population of the North to take part in the industrial development of this zone (which is completely justified from a certain standpoint) is coming up against extremely sizable obstacles under the conditions of the capitalist society (one of the main reasons for the appearance of these obstacles is the instability of local economic development in general), and instead of serving to create a stable population in the regions of new development, it often leads, on the contrary, to the destabilization of the existing population in this zone. The poorly planned and essentially forcefully imposed transition by the northern natives to a different way of life cannot produce positive results--and it cannot even take place as quickly as planned in government circles.<sup>17</sup>

#### Sources of Livelihood and Standard of Living

Whereas in 1968 the native inhabitants made up only 4.5 percent of the employees of the Far North's mining industry, the figure had already risen to 12 percent by 1972.<sup>18</sup> But this tendency, which arose at the beginning of the 1970's, did not stabilize later, since it was artificially created by the government in exchange for promises of various privileges for companies hiring natives. Many of the Indians and Eskimos who were hired to work in the mines could not completely "adapt": The companies did not create the necessary conditions for this. For example, the proportion accounted for by natives among the employees of the Pine Point mine first rose from 4.6 percent in 1967 to 17 percent in 1970, but by 1975 it had fallen to 7.2 percent. The situation was similar at a mine owned by the Anvil firm (Faro), where the owner promised, in exchange for government assistance (in the creation of the industrial infrastructure), to bring the proportion accounted for by Indians among workers up to 25 percent. Actually, the figure only went up as high as 10 percent, after which it quickly fell to 1 percent.<sup>19</sup> Nonetheless, these failures did not discourage the persons who advocated the involvement of the native population in industry. In 1971, government agencies concluded an agreement with the Nanisivik Mines Company, in accordance with which a new mine on Baffin Island would hire 120 Eskimos--making up 60 percent of the total staff--by 1979.<sup>20</sup> After analyzing the possible economic and social consequences of this relatively short-lived project



(the working of the mine was expected to take 11-13 years), R. Gibson, the author of a special study conducted in 1977 at the request of the Science Council of Canada, concluded that it contradicted the government policy of "improving the quality of northern life" declared in 1972. The project was approved without any preliminary consultations with the Eskimos, whose vested interests it would affect, and without any preliminary study of the possible ecological consequences; in addition, it "was not geared toward the future."<sup>21</sup>

The results of a program for the employment of native inhabitants for seasonal work in geological prospecting and road construction were slightly more successful. Between 1971 and 1974, the number of natives of the Far North employed in oil prospecting rose from 302 to 561, and the number employed in road construction rose from 46 to 658.<sup>22</sup> More than three-fourths of the northern natives hired, however, had no qualifications and were hired as unskilled laborers. Moreover, in the mid 1970's, the companies engaged in this work (primarily the partly government-owned Panarctic firm) began to experiment with the creation of "shift" jobs for Eskimos. In this system, several individuals were hired to fill one staff position, and they could then take turns leaving the job to go hunting in the tundra. In 1974 the Panarctic Company hired 100 Eskimos on this basis and investigated the possibilities for the broader use of this system.<sup>23</sup>

Another way of providing the native population with additional means of livelihood consists in the development of traditional crafts (the manufacture of ethnic art goods and souvenirs) and the employment of natives for service positions in the tourist industry. But the total turnover of the Eskimo craft cooperative which began to be set up as early as 1959 did not exceed 8 million dollars a year by 1975. Taken together, these branches did not account for more than 12 percent of the income of the indigenous population of Northern Quebec in the early 1970's (paid employment accounted for 22 percent, hunting and fishing accounted for 39 percent and government assistance accounted for 14 percent).<sup>24</sup>

All of this is creating a colossal gap between the standards of living of the native population and the new settlers. For example, in the District of Mackenzie, the most highly developed district of the Far North in the economic sense (where around half of the total population lives), average annual per capita income in the beginning of the 1970's was 667 dollars for Indians, 840 dollars for Eskimos, 1,046 dollars for Metises and 3,545 dollars for whites.<sup>25</sup> The per capita income in Indian settlements of Northern Manitoba in 1973 was 790 dollars, while the figure for all of Manitoba was 3,410 dollars and the nationwide figure was 3,440 dollars.<sup>26</sup> The low standard of living of the native population is, in particular, one of the reasons that the tuberculosis mortality rate in the Far East was 4 times as high as the Canadian average in 1970,<sup>27</sup> and the incidence of tuberculosis among the natives of Northern Manitoba in 1972 was 8 times as high as the incidence among new settlers in the same region and 10 times as high as the indicator for the entire province. The infant mortality rate is in inverse proportion to the income level. For the Indians of the Far



North, this indicator in 1975 was 5 times as high as the indicator for new settlers in the same territory, and for Eskimos it was 4 times as high.<sup>28</sup>

An eloquent description of the status of the native population of North Ontario can be found in a working paper of the federal Ministry of Regional Economic Expansion, published in 1977.<sup>29</sup> It states: "The territory is inhabited by a sizable group of socially and economically underprivileged individuals, who are isolated from the political and socioeconomic life of the province by such barriers as geographic location, a low level of education and poverty. A considerable part of this population is indigenous to the region and could have once relied for its subsistence on the natural surroundings here, by bartering or selling fish and furs. As a result of a general lack of knowledge about possible ways of solving medical and personal problems, many of them live in horrifying conditions. Their traditional way of life is rapidly disintegrating and too many of them have no opportunity to take part in the economic life of North Ontario." After making these completely true statements, the ministry announced the allocation (on a 50-50 basis with the provincial government) of a ridiculously small sum--62,500 dollars--over a period of 2 years for the professional training of the natives (more than 10,000 individuals), plus 21,000 for teaching them housekeeping and 34,000 for teaching them to serve tourists.

#### Increase in Political Activity

In recent years, the struggle of the North's native people for their rights has grown dramatically. For example, the Indian Brotherhood of the Northwest Territories, formed in 1969, in conjunction with "Inuit Tapirisat," an all-Canada Eskimo organization founded in 1971, for several years led the struggle for the recognition of the territorial rights of Indians and Eskimos to the land in the Mackenzie River valley, through which a pipeline of the Arctic Gas consortium was to run. The Indians and Eskimos threatened to take violent action and even to blow up the pipeline if their rights to the land remained unrecognized and the pipeline was laid without their consent. A specially formed government commission (the Berger Commission) had to admit, after 2 years of investigating these claims, that their demands were just, and under public pressure, the government announced its decision in the summer of 1977 to "shelve" the plan for the construction of this pipeline for a minimum of 10 years. According to reports in the Canadian press, at the beginning of 1978 a similar struggle was waged by the Indian Council of Yukon against a plan, already sanctioned by the government (without any preliminary decision on the question of the territorial rights of the local native population), for the construction of a pipeline running through the Yukon Territory from Alaska to the south (the Foothill Company).<sup>30</sup>

At the beginning of 1976, Inuit Tapirisat petitioned the Canadian Government to recognize the exclusive rights of the Eskimos to the Canadian Arctic (around one-fifth of all Canadian territory, including the districts of Franklin and Keewatin in their entirety and the northern half of the District of Mackenzie) and grant them the right to tax the companies mining for minerals here, and to consider the possibility of turning this territory

into a new Canadian province which would be autonomous of the federal government. In the fall of the same year, similar demands (the granting of national and territorial autonomy to the "Dene people") were set forth by the Indian Brotherhood of the Northwest Territories, which described the present system of self-government in the territory--an elected (since 1975) council of 15, including 6 Eskimos and not a single Indian--as "a puppet of the colonial authorities in Ottawa."<sup>31</sup> After these requests were denied by Prime Minister Trudeau in 1976, they were resubmitted in the fall of 1977 (in connection with the discussion of plans for the revision of the Canadian Constitution); organizations representing the native inhabitants of the North declared that they intended to appeal to the United Nations if their requests were denied again.<sup>32</sup>

Judging by all indications, however, the federal government adopted a new and tougher line in the fall of 1977 in regard to the northern natives and their organizations. This is attested to by the government's surprising speed in consenting, without engaging in any kind of discussion of the territorial rights of the Yukon Indians, to the construction of the Foothill pipeline, and it is also attested to, in the unanimous view of news commentators, by the dismissal of Warren Allmand from the post of minister of Indian affairs and northern development in September 1977, after he had held the position for only a year and had tried to conduct an "unprecedented pro-Indian policy of slower industrial development in the North," appealing to his cabinet colleagues to take an "understanding approach" to the demands of the indigenous population.<sup>33</sup>

At the first international Eskimo conference, which was held in June 1977 in North Slope Borough (Alaska) and was attended by delegates from Canada, Greenland and Alaska and observers from nine countries, a resolution was passed which supported the "demands of the Canadian Eskimos for the recognition of their right to self-determination on their native soil." A special resolution also supported the demands of the Eskimo Association of Labrador (Newfoundland) for the recognition of their territorial rights, set forth in March 1977. One resolution appealed for the "peaceful and ecologically safe use of Arctic territory."<sup>34</sup>

Therefore, the native population of the Canadian North, in which only ethnographers took an interest not long ago and which has only been given serious consideration by economists in the last decade, began to take action in the 1970's as a clearly defined independent political force on the federal level and, most recently, even in the international arena. The increasing political activity of the North's inhabitants could, in the near future, bring about substantial changes--if it has not already made these changes--in the "political climate" which has favored monopolies to date in the largest of the imperialist camp's last reserves of territorial resources--the Canadian North.

#### FOOTNOTES

1. "Perspective Canada," Ottawa, 1974, p 237.

2. "Faits et chiffres: Territoires du Nord-Ouest," Ottawa, 1974, p 11; "The Northwest Territories Today," Ottawa, 1965, p 106.
3. At the end of 1978, the Canadian Government signed a "agreement in principle" on the territorial rights of the Eskimos of the West Arctic, which was more of a declarative nature and postponed the elaboration and ratification of the "final agreement" until 1979-1981 ("Inuvialuit Land Rights Settlement Agreement-in-Principle," signed 31 October 1978, complete text, par 3 [2]).
4. Canadian geographer J. Robinson remarks: "The Eskimos have undergone the process of 'urbanization,' just as the inhabitants of Canada's South, and vast expanses of the Arctic are now completely unpopulated.... Most of its inhabitants are 'urbanites'" (J. Robinson, "Regional Geography of Canada," "Canada Yearbook 1972," Ottawa, 1972, p 26). At the same time, between 1961 and 1971 the population of Pond Inlet increased 7.8-fold, with corresponding figures of 6.9-fold for Clyde River, 6.1-fold for Pangnirtung, 5.5-fold for Arctic Bay and 3.9-fold for Frobisher Bay ("Northwest Territories Statistical Abstract," Ottawa, 1973, p 20).
5. L. A. Faynberg, "Ocherki etnicheskoy istorii zarubezhnogo Severa" [Essays on the Ethnic History of the Foreign North], Moscow, 1971, p 153.
6. According to famous Canadian writer and social activist F. Mowat, the real reason for the failure to develop reindeer-breeding in Canada was the opposition of large livestock breeders in the southern regions, who were afraid of competition and were exerting pressure on the government, and the government, in turn, did not make enough of an effort to teach the natives the methods of breeding. Mowat refutes the widespread belief of the Eskimos' "inability" to breed reindeer by citing the experience of Soviet Chukotka, where the Eskimos have joined the Chukchi in this field (F. Mowat, "Sibir. My Discovery of Siberia," Toronto, 1970, p 211). According to various estimates, the North Canadian pastures could accommodate 1-2 million reindeer (Ibid., p 215; G. R. Arganat, "Zarubezhnyy Sever: opyt osvoyeniya" [The Foreign North: Experience in Development], Moscow, 1970, p 319).
7. D. Riches, "Three Life Styles for Ungava Eskimos," GEOGRAPHICAL MAGAZINE, No 7, 1973, p 528.
8. R. Gibson, "The Strathcona Sound Mining Project," Ottawa, 1977, p 17; LE DEVOIR, 25 May 1977.
9. Canadian expert on northern affairs L. E. Hamelin drew up a table showing the two systems of moral values of the natives and "whites," based on the findings of an extensive survey. Fundamental differences were discovered in views on all major aspects of life: attitudes toward nature,

toward colleagues, the concepts of success, personal freedom, generosity and happiness and, in particular, attitudes toward work--the native attitude is that "man works in accordance with his natural and biological cycle"; the "white" opinion was that "man works each day from 9 in the morning until 5 in the evening") (L. E. Hamelin, "Nordicite canadienne," Montreal, 1975, p 348).

10. "Northwest Territories Statistical Abstract," pp 123-124.
11. "Perspective Canada," Ottawa, 1974, p 292 (the data also include new settlers).
12. H. Brody, "The People's Land: Eskimos and Whites in the Eastern Arctic," Harmondsworth, 1975, pp 229-230.
13. See, for example, J. Lubart, "Problemes psychodynamiques d'adaptation des Esquimaux," Ottawa, 1972, p 46.
14. THE GLOBE AND MAIL, 15 September 1977.
15. R. Gibson, Op. cit., p 404.
16. R. Williamson, "Macro-Social Structures and Processes in the Northern Cultural Change," INTER-NORD, No 12, 1972, p 60; LE DEVOIR, 29 September 1975.
17. For example, in 1968 the Ministry of Indian Affairs and Northern Development passed a resolution to bring the proportion accounted for by natives among civil servants in the Far North up to 75 percent by 1975 (OILWEEK, No 41, 1968); incidentally, a year later the deadline had already been extended to 1977 (THE EDMONTON JOURNAL, 2 December 1969). By the beginning of 1975, only 990 Indians and Eskimos were employed in the civil service here, making up less than a third of all civil servants ("Department of Indian Affairs and Northern Development"--hereafter called DIAND, Annual Report 1974-1975, Ottawa, 1975, p 51).
18. R. Veale and R. Page, "Northern Development: The Plunder of a Fragile Land," Committee for an Independent Canada Policy Paper, Edmonton, 1972, p 5.
19. R. Gibson, Op. cit., pp 20, 25-26.
20. "DIAND, Annual Report 1974-1975," p 51.
21. R. Gibson, Op. cit., p 289.
22. "DIAND, Annual Report 1972-1973," Ottawa, 1973, p 70; "Annual Report 1974-1975," p 51.
23. "DIAND, Annual Report 1974-1975," p 51.

24. "Canada Handbook," Ottawa, 1977, p 46; L. E. Hamelin, Op. cit., p 328.
25. Ibid., p 331.
26. "Le contexte du development regional," Ottawa, MEER, 1976, p 99.
27. "Northern Development and Territorial Governments, Ottawa," DIAND, 1974, p 21.
28. "Science Council of Canada," report No 26, Ottawa, 1977, pp 27, 29.
29. "Summaries of Federal-Provincial General Development Agreements," Ottawa, March 1977, pp 144-145.
30. LE DEVOIR, 25 January 1978.
31. THE GLOBE AND MAIL, 6 August 1977; LE DEVOIR, 5 August 1977.
32. THE TORONTO STAR, 17 December 1977.
33. THE GLOBE AND MAIL, 4 August 1977; THE TORONTO STAR, 17 December 1977.
34. "Inuit Circumpolar Conference," June 1977, pp 10-12.

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RESOLUTION OF THE ANNUAL MEETING OF THE ECONOMIC SECTION OF THE USSR  
ACADEMY OF SCIENCES

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 7, Jul 79  
pp 124-126

[Resolution passed at 12 March 1979 general annual meeting of Economic  
Section, USSR Academy of Sciences]

[Text] The general annual meeting of the Economic Section of the USSR Academy of Sciences notes that, in accordance with the decisions of the 25th CPSU Congress, the July and November CPSU Central Committee plenums (1978), the statements and conclusions set forth in speeches by Comrade L. I. Brezhnev and the steps taken by the Economic Section of the USSR Academy of Sciences to ensure the fulfillment of 25th CPSU Congress decisions in the area of economics in this five-year plan, economists have focused their attention on the study of fundamental problems and natural tendencies in the functioning of the developed socialist economy, the criteria and methods of building a material and technical base for communism, enhancing production efficiency and improving national economic management, problems in socialist economic integration and the development of long-range economic ties between the USSR and the socialist countries, new economic and political phenomena in the capitalist and developing countries, problems in Soviet foreign economic ties and natural trends in the development of the world revolutionary process.

Research teams in economic subdivisions have worked toward the further expansion and reinforcement of ties with production and the accelerated incorporation of scientific achievements in national economic practice.

At the same time, the meeting believes that economic establishments of the USSR Academy of Sciences still have sizable unutilized reserves for enhancing the effectiveness of scientific research. These consist primarily in the elevation of professional qualifications, the encouragement of creative activity by scientists, the improvement of the planning, organization and coordination of research projects and the further consolidation of the ties connecting research with important objectives of communist construction.

After hearing and discussing the accountability report of the Economic Section of the USSR Academy of Sciences, the general annual meeting of the Economic Section of the USSR Academy of Sciences

**RESOLVES:**

1. To approve the results of the research work of economic establishments and the scientific organizational activity of the Economic Section of the USSR Academy of Sciences for 1978.

Institutes and scientific councils of the Economic Section of the USSR Academy of Sciences, economic establishments of the Siberian branch of the USSR Academy of Sciences, scientific centers and branches of the USSR Academy of Sciences and the economics institutes of union republic academies of sciences must ensure the unconditional fulfillment of the plans for scientific research during the 1976-1980 period by all economic subdivisions of the USSR Academy of Sciences. The efficiency and quality of research work are to be enhanced and scientific findings are to be put to use more quickly in national economic practices.

2. To direct the attention of institutes and bureaus of the Economic Section of the USSR Academy of Sciences to the need to draft a thoroughly substantiated plan for scientific research in the 1981-1985 period, which should reflect the resolution of the major fundamental problems of economic science, the most important national economic problems and problems in the international relations and foreign policy of the Soviet Union, the guarantee of higher economic growth rates and the establishment of the necessary conditions for the successful fulfillment of the 11th Five-Year Plan for economic and social development in the USSR.

3. Institutes and scientific establishments of the Economic Section must continue their intensive work on major fundamental problems of the 1976-1980 period in line with the following comprehensive programs:

"The Economic Problems of Developed Socialism and the Natural Laws Governing its Evolution Into Communism" (headed by Corresponding Member of the USSR Academy of Sciences Ye. I. Kapustin);

"The Improvement of National Economic Planning and Management" (headed by Academician N. P. Fedorenko);

"Regional Economics and Regional Socioeconomic Development in the USSR up to the Year 2000. The Formation and Development of Large National Economic and Territorial Production Complexes" (headed by Academician N. P. Nekrasov);

"Comprehensive Program for Research on Demographic Problems" (headed by Corresponding Member of the USSR Academy of Sciences T. V. Ryabushkin);

"Natural Tendencies in the Development of the World Socialist Economy, the Problems of Socialist Economic Integration and the Development of Long-Range Economic Ties Between the USSR and the Socialist Countries" (headed by Corresponding Member of the USSR Academy of Sciences O. T. Bogomolov);

"The Natural Laws and Tendencies of Economic Development in the Capitalist and Developing Countries and the World Capitalist Economy, and Problems in Soviet Foreign Economic Ties with These Countries" (headed by Academician N. N. Inozemtsev).

4. Authors' collectives must take steps to speed up their work on the following fundamental theoretical studies: "Ekonomicheskiy stroy sotsializma" [The Economic Structure of Socialism], "Mirovoye sotsialisticheskoye khozyaystvo" [The World Socialist Economy] (questions of political economy), "Osnovy teorii mezhdunarodnykh otnosheniy" [Fundamentals of the Theory of International Relations] and "Osnovy sistemy optimal'nogo planirovaniya i upravleniya sotsialisticheskoy ekonomikoy" [Fundamentals of the System of Optimal Socialist Economic Planning and Management]. The bureau of the section must regularly investigate the progress in the compilation of these scientific works at its meetings.

5. The bureaus of the Economic Section and institutes of the USSR Academy of Sciences must continue working on the "Comprehensive Program for Technological Progress and Its Socioeconomic Consequences Up to the Year 2000." At the same time, commissions created by the section bureau must complete their work this year on the preparation of recommendations concerning the resolution of urgent national economic problems, including recommendations pertaining to the improvement of the economic mechanism.

6. In accordance with the materials of the July (1973) CPSU Central Committee Plenum, institutes of the section, the economic subdivisions of scientific centers, branches and the Siberian division of the USSR Academy of Sciences, and economics institutes of the union republic academies of sciences must give more attention to the investigation and substantiation of guidelines for the further development of the nation's agroindustrial complex and the improvement of agriculture's ties with other branches of the national economy.

7. Institutes of the international type must investigate problems in the development of the world socialist system more intensively, summarizing the practical experience accumulated by the CEMA countries in the resolution of urgent socioeconomic problems that arise during the construction of a developed socialist society.

Measures must be taken to institute even more thorough investigation of the distinctive features of the general crisis of capitalism during its current stage, the natural laws governing socioeconomic development and scientific and technical progress in the main capitalist countries, and basic tendencies in worldwide capitalist economics and international relations. More thorough research must be conducted into the theoretical and political aspects of the transition from capitalism to socialism under present conditions, the revolutionary process and the developmental prospects of the Asian, African and Latin American countries.

8. Soviet economists must reinforce their criticism by proving the scientific groundlessness and exposing the class essence of bourgeois, reformist, revisionist and hegemonist economic and political theories directed against real socialism, and they must develop and defend Marxist-Leninist doctrine.

9. One of the major ways of enhancing the effectiveness of scientific research consists in the further improvement of the planning and organization of research projects and the elaboration of proposals concerning the improvement of material incentives for scientists.

10. The scientific councils of the Economic Section of the USSR Academy of Sciences must coordinate theoretical investigations of cardinal national economic issues more precisely. There must be broader scientific cooperation by institutes of the Economic Section of the USSR Academy of Sciences with economic establishments of union republic academies of sciences, ministries, departments and VUZ's in the nation, particularly in drawing up and carrying out research programs on fundamental topics.

11. The district meetings of bureaus of the Economic Section of the USSR Academy of Sciences must be described as useful. They have played an important role in raising the level of comprehensive scientific research in the union republic academies of sciences, scientific centers and branches.

12. The journals of the Economic Section of the USSR Academy of Sciences must work toward the further enhancement of the scientific and technical standard and practical significance of publications and debates on current issues, and they must improve the content of the reviews they publish on economic literature.

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## CHRONICLE OF SOVIET-AMERICAN RELATIONS

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pp 126-177

[Text] March

2 -- General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet L. I. Brezhnev, addressing the voters of Moscow's Baumanskiy Electoral District, discussed the significance of the SALT-II agreement being drafted.

5 -- According to public opinion polls conducted by the NBC radio and television broadcasting company and the AP agency, 81 percent of the Americans are in favor of the SALT agreement (the figure was 59 percent in 1976, and 75 percent in 1978).

7, 21 -- Regular meetings of the Soviet and U.S. SALT delegations took place in Geneva.

8 -- In Moscow, a Soviet-American seminar on information and documentation in the social sciences came to an end at the USSR Academy of Sciences' Institute of Scientific Information on the Social Sciences.

The Soviet permanent mission to the United Nations submitted an official document to the UN secretary-general, declaring that the United States had taken unwarranted action in relation to the Trust Territory of the Pacific Islands (Micronesia).

13 -- According to a survey conducted by the Harris service, 70 percent of all Americans are in favor of broader commercial and trade contacts with the USSR, free of discriminatory barriers.

16 -- The American publishing firm of Harcourt Brace Jovanovich published L. I. Brezhnev's book "O mire, razryadke i sovetsko-amerikanskikh otnosheniyakh" [Peace, Detente and Soviet-American Relations], with a preface in which the author addresses the American reader.



17 -- Secretary of State C. Vance met with Soviet Ambassador A. F. Dobrynin and discussed some aspects of the Soviet-American SALT-II negotiations.

20 -- A session of the Soviet-American Standing Advisory Committee met in Geneva to work toward the attainment of the objectives and premises of the Treaty on the Limitation of Antimissile Systems and the Provisional Agreement on Some Measures in the Limitation of Strategic Offensive Weapons, signed 26 May 1972, as well as a Soviet-American agreement of 30 September 1971 on measures to reduce the danger of nuclear war.

31 -- The American Administration requested Congress to allocate an additional sum of around 13 million dollars in the current fiscal year for the underground testing of nuclear weapons.

April

3, 6, 23 -- The heads of the Soviet and U.S. SALT delegations met in Geneva.

5 -- Speaking in New York before members of the Foreign Policy Association and Council on Foreign Relations, U.S. Secretary of Defense H. Brown discussed SALT-II and remarked that "the SALT process is important for the further development of American-Soviet relations and relations between the East and West in general."

10 -- U.S. NEWS AND WORLD REPORT published an interview with Z. Brzezinski, in which particular mention was made of the significance of a SALT agreement between the USSR and the United States.

11 -- At a press conference in Washington, President J. Carter discussed the Soviet-American SALT negotiations.

The series of meetings of Soviet and U.S. delegations, held in Geneva since 21 February 1979 for the continued negotiation of a ban on chemical weapons, came to an end.

11, 19, 25 -- Regular meetings of the Soviet and U.S. SALT delegations took place in Geneva.

13-22 -- A delegation of U.S. congressmen, headed by House Majority Whip J. Brademas, was in the Soviet Union on an official visit at the invitation of the USSR Supreme Soviet. The congressmen were received by A. N. Kosygin, member of the CPSU Central Committee Politburo and chairman of the USSR Council of Ministers. The head of the delegation, J. Brademas, and its members, R. Michel, C. Vanik and L. Hamilton, met with A. A. Gromyko, member of the CPSU Central Committee Politburo and USSR minister of foreign affairs. The congressmen spoke with a delegation from the USSR Supreme Soviet, headed by B. N. Ponomarev, alternate member of the CPSU Central Committee Politburo and secretary of the CPSU Central Committee. During these meetings and talks, questions connected with the drafting of the SALT-II treaty, problems in the curtailment of the arms race as a whole,

aspects of trade, economic and cultural relations between the USSR and the United States and several international issues were discussed.

20 -- Meetings of Soviet and U.S. delegations, held in Geneva since 6 February 1979 for the purpose of continued negotiation of a ban on new types and systems of weapons of mass destruction and, in this context, a ban on radiological weapons, came to an end.

24 -- President Carter, speaking at the annual conference of the National Academy of Sciences, underscored the importance of the Soviet-American SALT-II negotiations.

The chairman of the board of Harcourt Brace Jovanovich, W. Jovanovich, who was in Moscow as a guest of the Academy of Pedagogical Sciences, was received by V. V. Kuznetsov, alternate member of the CPSU Central Committee Politburo and first deputy chairman of the Presidium of the USSR Supreme Soviet.

25 -- American President J. Carter spoke at a convention of American newspaper publishers and discussed matters connected with the anticipated conclusion of a Soviet-American SALT-II agreement.

#### May

1 -- Soviet Ambassador A. F. Dobrynin had a meeting with U.S. Secretary of State C. Vance, which was mainly taken up by discussion of matters connected with SALT-II.

2 -- Speaking in Chicago, U.S. Secretary of State C. Vance stressed the fact that the conclusion of the SALT-II agreement would be "a decidedly important step toward the establishment of reasonable control over strategic weapons."

3 -- A scheduled meeting between Secretary of State C. Vance and Soviet Ambassador A. F. Dobrynin took place.

4 -- The heads of the Soviet and U.S. SALT delegations met in Geneva.

6 -- The 12th Dartmouth conference was held from 3 through 6 May in Williamsburg (Virginia) and was attended by U.S. congressmen, deputies of the USSR Supreme Soviet and Soviet and American politicians, social activists and representatives of the business and science communities.

9-19 -- Soviet Minister of Culture P. N. Demichev, alternate member of the CPSU Central Committee Politburo, came to the United States at the invitation of the American Government. A Soviet exhibit entitled "Masterpieces of Italian Painting from the State Hermitage Collection" opened at the National Art Gallery in Washington on 11 May. The opening of the Soviet exhibit "Treasures from the Moscow Kremlin Museums" took place on 17 May in the Metropolitan Museum in New York. A message from General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium L. I. Brezhnev, greeting visitors to the exhibit, was read at the opening ceremonies. During his stay, P. N. Demichev talked with Secretary

of State C. Vance, the President's National Security Adviser Z. Brzezinski, Vice-President W. Mondale and Director J. Reinhardt of the U.S. International Communications Agency.

10 -- Secretary of State C. Vance announced at a press conference that an agreement in principle had been reached on essential aspects of the SALT-II negotiations.

11 -- American President J. Carter delivered an address in the White House, stressing the importance of the SALT-II agreement for the United States and for the development of Soviet-American relations.

A ceremony was held in the Soviet Embassy in the United States to award A. Hammer, on behalf of L. I. Brezhnev, his bust, sculpted by Soviet folk artist N. V. Tomskiy.

12 -- A report was published stating that tentative plans had been made for a meeting between General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet L. I. Brezhnev and U.S. President J. Carter on 15-18 June in Vienna. L. I. Brezhnev and J. Carter are to approve and sign the treaty on the limitation of strategic offensive weapons; plans also call for the discussion of other matters of common interest to the USSR and United States.

16, 18, 21, 26 -- The heads of the Soviet and U.S. SALT-II delegations met in Geneva.

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